

**TECHNOLOGY THAT INSPIRES FROM 1963** 



# QUALITY FROM EXPERIENCE

BERNSTEIN has specialised in the manufacture of ESD and precision tools since 1953. The BERNSTEIN company name first officially appeared in 1953 at the German exposition for radio and television in Düsseldorf. At that time, BERNSTEIN was the technology department of the company **BER**nhard **STEIN**rücke, an Ironware wholesaler in Lennep.

It wasn't until three years later that BERNSTEIN developed into an independent tool factory. During this periods, Bernstein manufactured a range of highly specialised hand tools for the

production, maintenance and repair of radios, television sets and other Hi-Fi equipment. The radio and television industry experienced a boom in the following years. BERNSTEIN products were represented and known in almost all the European fairs up until 1970.

Today, BERNSTEIN is still one of the wellknown manufacturers of hand tools for electronics and precision mechanics handtools, together with its partners, supplies industry in Germany, Europe and the world.

BERNSTEIN draws on knowledge gained over many years to process Bernstein raw materials into high-quality tools with the highest standards in terms of quality and origin. Our product portfolio ranges from tweezers, pliers and screw drivers to custom, specialised tools, ball-joint vices and ball-joint-holders.

BERNSTEIN Werkzeugfabrik STEINRÜCKE KG.

1956

Werkzeugfabrik Steinrücke KG. With the handy pocket

1959

"assistant", BÉRNSTEIN launches a portable workshop for the first industrial fair in the same 1961

The company is relocated Industriehof Trecknase 1 in Remscheid-Lennep.

1964

. tional vice "SPANNFIX" and "SPANNFIX VARIO", product to this day.

# 2016 2019 True to the motto "GO After one year in DIGITAL", our new webdevelopment, we are site went online in 2016, able to present the new and since then has provigeneration of our large ded our customers with vice, the Spannfix 4.0. up-to-date information about our products. **FACTS AND FIGURES GERMAN QUALITY 75**% **MADE IN GERMANY 50**% **GERMANY OUR PRODUCTS**

2012

The company takeover in 2012 meant that it was time for a complete redesign of the corporate image. Since then, the orange diamond has stood for high quality.

2014

Our products have also been continuously adapted to the new course. In 2015, we created the BERNSTEIN case PROTECTION in an unmistakable design.



We reach customers in Germany, Europe and across the world via our partners. We don't just supply the electronics industry. Our tools also ind use in laboratories, test facilities, model making, the optical industry and dental sector.

# **BERNSTEIN PRODUCT RANGE**



# **CLAMPING TOOLS**

Ball joint vice and accessories

Ball joint holder and accessories



# **ESD AND ELECTRONICS**

ESD work place

ESD and non ESD hand tools



## **SCREWING TOOLS**

Torque tools

Screwdriver and bits



# **TWEEZERS**

Single tweezers

Tweezer sets and holders



# PLIERS, STRIPPING AND CRIMPING

Single pliers, sets and holders

Stripping and crimping



# **VDE AND ELECTRIC**

VDE tools and cases



# **CASES AND SETS**

ESD Cases and sets

Electrician cases and sets

# **VISIT US ON THE WEB**



On our homepage we offer you an overview of the current range and regularly provide information about new products.



Or subscribe for the newsletter and you will automatically be informed about new products



We are in direct contact with you via Instagram LinkedIn, Facebook, YouTube and look forward to your suggestions about our products.

# TERMS OF SALE AND DELIVERY

#### **GENERAL**

The nature and scope of delivery are specified in the order confirmation. The following delivery terms shall apply to all deliveries to be carried out by us. Purchasing conditions of the customer do not oblige us, even if we do not expressly contradict this. Verbal or by intercom agreements made require our written confirmation. Obvious mistakes in offers, order confirmations, etc. are expressly reserved and can be considered at any time. We are entitled to process any data relating to the business relationship or in connection with the same concerning buyers, whether the buyer itself or third parties, within the framework of the Federal Data Protection Act.

#### **OFFER**

Our offers are permissive, an order is deemed to be granted if confirmed by us in writing. PRICES, DELIVERY BASIS AND PACKAGING Unless otherwise agreed, the prices in Euros, ex works, are exclusive packaging. In the case of special packaging regulations of the customer, the additional costs involved are invoiced. Packaging is not accepted.

# **DELIVERY**

The delivery takes place at the expense and risk of the buyer without regard to who bears the freight costs. We reserve the right to place orders in partial deliveries. For custom-made products, excess or short deliveries of up to 10% are permitted.

# **DELIVERY TIME**

The delivery time begins upon receipt of all information required for the execution of the order. We endeavor to comply with the delivery time specified in the order confirmation. No claims of any kind can be asserted from a delayed delivery.

## **COMPLAINTS**

Complaints can only be accepted within 8 days after receiving of the goods.

The shape and colour of the tool may differ from the item shown in the catalogue.

# **GUARANTEE**

For all BERNSTEIN tools, which are unusable due to proven material or manufacturing defects, we deliver within one year after deliver a replacement. This free replacement service is excluded if the tools have become unusable due to natural wear or improper handling.

#### **DISCLAIMER**

We do not assume any guarantee for the suitability of our products for the intended purpose of the customer. For damages caused by unsuitable or improper use, commissioning by the customer or third parties, and for the natural wear and tear we assume no guarantee. Any claims for damages, irrespective of the legal basis, as well as, in particular, the liability by tort (product liability) are excluded to the extent permitted by law.

#### **PAYMENT**

Our invoices are payable within 10 days of the invoice date with 2% discount or in 30 days net, unless otherwise agreed in the order confirmation.

#### RESERVATION OF TITLE

We reserve the title to all goods delivered by us until the buyer has paid all claims arising from the business relationship. The buyer is entitled to resell the reserved goods in ordinary business transactions. In the case of resale, the buyer has to reserve the ownership of the sold goods on the same terms as his customer. The purchaser hereby assigns to us the purchase price claim against the buyer from the resale.

#### **FULFILLMENT AND JURISDICTION**

Place of performance and jurisdiction for delivery and payment is Remscheid. In any case, only German law shall apply, with the exclusion of any foreign law.

# **ONLINE DISPUTE RESOLUTION**

The European Commission provides a platform for online dispute resolutions (ODR) which can be accessed at

#### https://ec.europa.eu/consumers/odr/.

In order to settle dispute arising from a contractual relationship with a consumer or from whether such a contractual relationship exists at all, we will participate in dispute settlement proceedings before a consumer dispute resolution body. Consumers can contact their national European Consumer Centre in this regard. The respective contact details of the individual ECCs can be found at

https://www.evz.de/en/alternative-dispute-resolution/adr-in-europe/.



















# OUR ASSORTMENT IS VERSATILE

Every day, industry and trade put their trust in the reliability, safety and precision of hand tools manufactured by BERNSTEIN. Our range of special tools for electronics, electrical engineering and precision mechanics is characterised by high quality and assortment optimisation.

## WE CANNOT ONLY OFFER STANDARD

The Bernstein product portfolio includes over 1000 standard products. Furthermore, we make every effort to fulfil individual customer requests. There are currently around 200 different items that are custom manufactured to our customers' specifications.

# **ESD Tools**

BERNSTEIN offers an almost complete assortment of high-quality ESD tools for working on electrostatically sensitive components.

ESD pliers and ESD screwdrivers are equipped with grips that are electrostatically dissipative.

ESD tweezers and ESD clamping equipment have a high-quality, dissipative powder coating.

# **BERNSTEIN**

Werkzeugfabrik Steinrücke GmbH Industriehof Trecknase 1 42897 Remscheid

Tel. + 49 (0) 2191 - 9650 - 0 Fax + 49 (0) 2191 - 9650 - 30

sales@bernstein-tools.de





BALL JOINT - VICES
BALL JOINT - HOLDER
AND EQUIPMENT

Vers.01

## **GET IN CONTACT WITH US**

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**SYMBOL LEGEND** 

## **VISIT US ON THE WEB**

We update our product information on a regular basis and automatically using our Product Information System. This enables the quick and up-to-date compilation of customer-specific data feeds for your own digital sale activities. Take advantage of this service and always keep Bernstein product information up to date!

# www.bernstein-tools.de

Product videos and blog posts round off our online offering. Furthermore, we also respect the traditional sales channel via specialist retailers and offer the option to present your webshop as an online sales platform for products by BERNSTEIN.

# NEU New product Number of tools in sets Weight Dimensions ESD protection (EPA suitable)

VDE tested







# BALL JOINT CLAMPING DEVICES FIRM HOLD IN EVERY POSITION

Due to their complex geometry, workpieces, components or assemblies need to be able to be turned and held in different orientations during processing, servicing or repair.

We offer various retaining tools to overcome such challenges. Our SPANNFIX product series ranges from classic vice heads to special equipment for the electronics industry to variable and versatile bases.

In all of our SPANNFIX products, we manufacture our high-grade, precise ball joint from steel, the ball joint can be moved in many different positions and fixed steplessly with a simple press of the lever.

The different heads and bases in our SPANN-FIX product line allow flexible working in any place or situation. Depending on the application, they can be combined with each other.

For example, many of our various bases are used to hold cameras, monitors or other components. The possibilities are endless.

Get in touch with us if you can't find what you're looking for in our product range. Together we will find a solution.

sales@bernstein-tools.de

# CLAMPING TOOLS WITH BALL JOINT

# WHAT OUR CLAMPING TOOLS DISTINGUISHES

These are multifunctional clamping devices, the **perfect third hand** at the workplace, extremely flexible, can be fixed very quickly with high holding force.

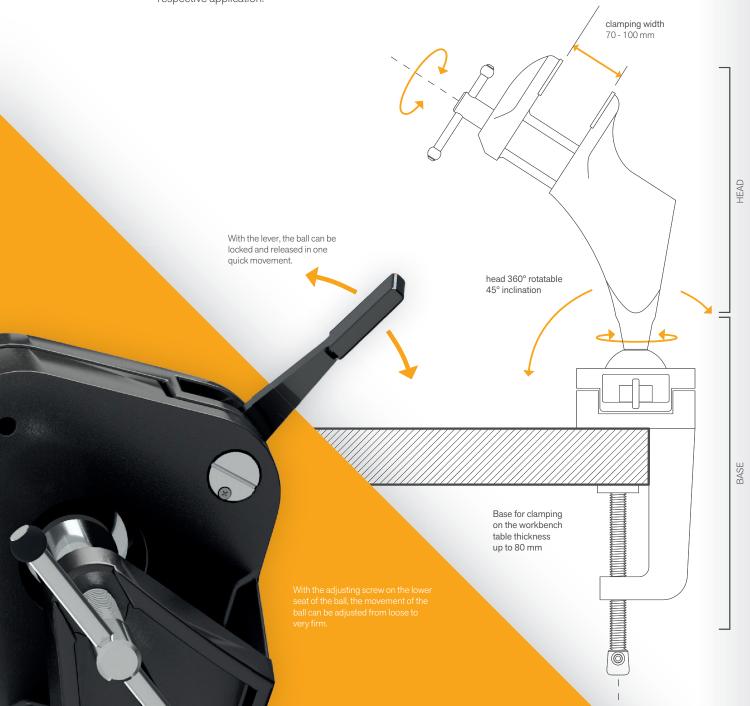
Individual adjustment of the working height offers an **ergonomic posture** standing or sitting work. Soldering, gluing, drilling, sawing, grinding, filing, milling, cutting, much more.

Individual adjustment of the **working angle** the workpiece can be held as required in the respective application.

With a **simple lever movement** the ball is locked or released.

The **mobility of the ball** can be set more tightly or loosely using the adjusting screw on the lower seat of the ball.

**Long product life** is guaranteed by the bullet-free cast aluminium, the high-quality powder coating and the refined steel parts. 100% Made in Germany.



# **AROUND THE BALL**

#### MANUFACTURE AND MATERIAL

The ball and connecting parts are made of free-cutting steel with a high-gloss chrome plating. The high-precision manufacture of the ball guarantees absolute roundness in order to ensure permanent ease of movement. The powder-coated parts are made of an aluminum alloy with high strength values. Our quality management carries out constant controls during the manufacturing process. During disassembly, every vice and ball joint holder is subject to a quality and function control.

The individual parts are made in Germany from Remscheid, eco-friendly and sustainably produced. When procuring raw materials and accessories, we work with selected suppliers who adhere to environmental compliance and ethical principles.

The traditional brand BERNSTEIN stands for durable products for professionals, which many customers have enjoyed for decades.

#### **CLAMPING FORCE AND TORQUE**

The size of the steel ball determines the holding force

#### Ø 40 mm

Maximum torque in the ball socket	approx. 24 Nm
Holding force at height of threaded pin	approx. 45 kg (441 N)

#### Ø 60 mm

Maximum torque in the ball socket	approx. 100 Nm
Holding force at height of threaded pin	approx. 140 kg (1372 N)

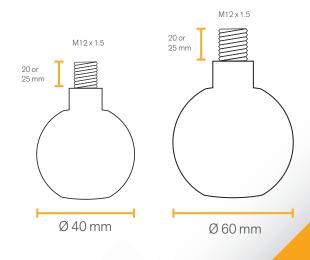
By degreasing the ball, you increase the maximum holding or clamping force.

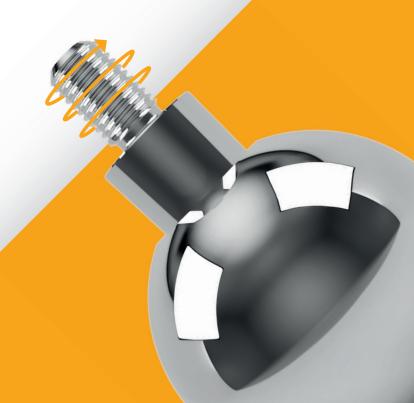
For safety-relevant parts, please note that we cannot give a guarantee of the holding forces without knowing your specific application. The ball may behave differently under different physical conditions than it does in our test laboratory in an optimal test environment.

## THREADED CONNECTION

The threaded pin on the ball has an M12 thread with a 1.5 mm pitch (special thread).

We offer matching threaded connection adapters 1/4 inch or metric threads from M6 to M12. With internal or external thread, straight or 45° bent length from 50 to 100 mm. Other threaded connections are available on request.





# BALL JOINT VICE MODELS

The BERNSTEIN ball joint vice has a continuously adjustable joint head that can be **rotated 360° and inclined \pm 45°**. The upper part of the vice can thus be tilted in any direction and allows work in front of or above the table. With a simple lever movement, the vice head is loosened in the ball socket, individually aligned and clamped again. Despite stepless locking, the ball clamp offers an **extremely strong hold.** 

The ESD versions have a dissipative powder coating and an earthing connection push button (10 mm) on the back.

The article numbers in the table are explained in detail on the following pages.



# ▶ Vice for clamping

Art-No.	Ball/torque	Clamp.force	Jaw width/material	Weight	Colour	Special feature
9-205	Ø 40 mm/ approx 24 Nm	1470 N	<b>50 mm</b> / plastic	1450 g	grey metallic	
9-205-ESD	Ø 40 mm/ approx 24 Nm	1470 N	50 mm / plastic	1450 g	ESD black	dissipative, with earthing connection
9-205-K	Ø 40 mm/ approx 24 Nm	1470 N	50 mm / plastic	1450 g	grey metallic	with Velcro (hook ripening together)
9-290	Ø 60 mm / approx 100 Nm	12,000 N	<b>100 mm</b> / steel	5500 g	grey metallic	the professional with pins and spirit level

# ▶ Vice for screwing on

Art-No.	Ball/torque	Clamp.force	Jaw width/material	Weight	Colour	Special feature
9-215	Ø 40 mm/ approx 24 Nm	1470 N	50 mm / plastic	1310 g	grey metallic	
9-215-ESD	Ø 40 mm/ approx 24 Nm	1470 N	50 mm / plastic	1310 g	ESD black	dissipative, with earthing connection
9-292	Ø 60 mm/ approx 100 Nm	12,000 N	100 mm / steel	4720 g	grey metallic	the professional with pins and spirit level

# Vice with magnets

Art-No.	Ball/torque	Clamp.force	Jaw width/material	Weight	Colour	Special feature
9-287	Ø 40 mm/ approx 24 Nm	1470 N	50 mm / plastic	1310 g	grey metallic	4 high-performance magnets
9-297	Ø 60 mm/ approx 100 Nm	12,000 N	<b>100 mm</b> / steel	4720 g	grey metallic	the professional with pins and spirit level and 4 high-performance magnets

NEW

# BALL JOINT HOLDER MODELS

The BERNSTEIN ball joint brackets enable precise and secure positioning in all directions, e.g. of sensors, measuring instruments, monitors and surveillance cameras, **inclination** angle  $\pm$  45°. The thread pin has an M12 x 1.5 mm thread (special thread), the scope of delivery includes a sschnorr washer, lock nut and lock nut for the thread. We offer suitable threaded connection adapters from M6 to M12 or 1/4 inch. With internal or external thread, straight or 45° bent, from 50 to 100 mm. Other threaded connections are available on request.

The ESD versions have a dissipative powder coating and an earthing connection push button (10 mm) on the back.

The item numbers in the table are explained in detail on the following pages.



# ▶ Ball Joint Holder for clamping

Art-No.	Ball/holding force	Thread length	Support surface	Clamping range	Colour	Dissipative
9-251	<b>Ø 40 mm</b> / approx 45 kg	20 mm	Ø 20 mm	max. 80 mm	grey metallic	
9-251-ESD	<b>Ø 40 mm</b> / approx 45 kg	20 mm	Ø 20 mm	max. 80 mm	ESD black	10 <sup>7</sup> - 10 <sup>8</sup> Ohm
9-251-SW	<b>Ø 40 mm</b> / approx 45 kg	20 mm	Ø 20 mm	max. 80 mm	black matt	
9-291	<b>Ø 60 mm</b> / approx140 kg	20 mm	Ø 20 mm	max. 80 mm	grey metallic	

# ▶ Ball Joint Holder for screwing on

Art-No.	Ball/holding force	Thread length	Support surface	Boreholes	Colour	Dissipative
9-261	<b>Ø 40 mm</b> / approx 45 kg	20 mm	Ø 20 mm	4 x Ø 9 mm	grey metallic	
9-261-ESD	<b>Ø 40 mm</b> / approx 45 kg	20 mm	Ø 20 mm	4 x Ø 9 mm	ESD black	10 <sup>7</sup> - 10 <sup>8</sup> Ohm
9-261-SW	<b>Ø 40 mm</b> / approx 45 kg	20 mm	Ø 20 mm	4 x Ø 9 mm	grey metallic	
9-262	<b>Ø 40 mm</b> / approx 45 kg	25 mm	Ø 36 mm	4 x Ø 9 mm	grey metallic	
9-262-SW	<b>Ø 40 mm</b> / approx 45 kg	25 mm	Ø 36 mm	4 x Ø 9 mm	black matt	
9-281	<b>Ø 40 mm</b> / approx 45 kg	20 mm	Ø 20 mm	4 x Ø 6.5 mm	grey metallic	
9-281-ESD	<b>Ø 40 mm</b> / approx 45 kg	20 mm	Ø 20 mm	4 x Ø 6.5 mm	ESD black	10 <sup>7</sup> - 10 <sup>8</sup> Ohm
9-281-SW	<b>Ø 40 mm</b> / approx 45 kg	20 mm	Ø 20 mm	4 x Ø 6.5 mm	black matt	
9-293	<b>Ø 60 mm</b> / approx140 kg	20 mm	Ø 20 mm	4 x Ø 9 mm	grey metallic	
9-294	<b>Ø 60 mm</b> / approx140 kg	25 mm	Ø 36 mm	4 x Ø 9 mm	grey metallic	

NEW

# ▶ Ball Joint Holder with magnets

ArtNo.	Ball/holding force	Thread length	Support surface	Colour	Magnete
9-284-SW	<b>Ø 40 mm</b> / approx 45 kg	20 mm	Ø 20 mm	black matt	4 magnets with protective cap, adhesive force
9-296	Ø 60 mm / approx140 kg	20 mm	Ø 20 mm	grev metallic	without cap: horizontally 32 kg, vertically 15 kg

NEW

# **BALL JOINT VICE - JAWS 50 MM**FOR CLAMPING

# ▶ Product family 9-205



For workbenches or tabletops with a maximum table thickness of 80 mm. The small vice with ball joint can be quickly and easily connect to any table tops thanks to its smooth-running table clamp. A little pressure of the lever is enough and that the clamped workpiece can be fixed steplessly and in any practical working position. He had stable 50 mm ribbed plastic jaws (waffle pattern).



Clamping pressure: 1470 N
Clamping width: 70 mm
Clamping depth: 38 mm
Jaw width: 50 mm





Position as shown approx 310 x 170 x 75 mm (dimensions for orientation)



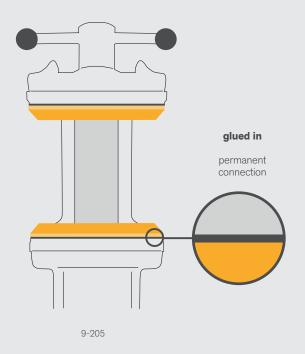
Weight 1450 g

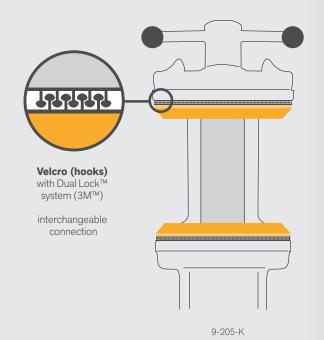


# **GLUE AND VELCRO**

We offer replacement jaws for permanent gluing 9-205 or with exchangeable Velcro connection 9-205-K.

In addition to smooth and ribbed plastic jaws, we offer cork, leather and felt jaws for optimum surface protection of the workpiece.





# **VARIANTS**

In electronics, PCBs (especially small circuit boards) are clamped into the conductive plastic jaws with a waffle pattern for soldering sensitive components. This **SPECIALIST** is EPA suitable (for electrostatically protected areas, ESD workplace, ESD protection zone) the foot section can be connected to the grounding point on the back with a 10 mm push button.







Art-No.	9-205	9-205-K	9-205-ESD
Colour variation and coating	grey metallic	grey metallic	black, dissipative
Protective jaws glued in	✓	-	<b>✓</b>
Velcro fastened protective jaws (Dual Lock™)	-	<b>✓</b>	-
Dissipative	-	-	10 <sup>7</sup> - 10 <sup>8</sup> Ohm

Application specialty







# **SETS**

Content

The **BASIC** and **ALLROUNDER** are used in model making and precision mechanics. The high-quality covering protects sensitive parts from scratches or damage.







Art-No. 9-205-SET1 9-205-K-SET1 9-205-ESD-SET1

9-205 Ball Joint Vice

Glue jaws:
99-900-K50-FILZ (FELT)
9-900-K50-KORK (CORK)
9-900-K50-LEDER (LEATHER)
9-900-K50-KST (plastic ribbed)
9-900-K50-KST (plastic ribbed)
2-123 Lever tool

9-205-K Ball Joint Vice

Velcro jaws:
99-900-K50-FILZ (FELT)
9-900-K50-KORK (CORK)
9-900-K50-LEDER (LEATHER)
9-900-K50-KST (plastic ribbed)
9-900-K50-KSTG (plastic ribbed)

9-205 ESD Ball Joint Vice

**ESD Accessories:** 9-359-2 ESD Earth bonding plug 9-343-1 ESD Grounding cable

Application specialty BASIC ALLROUNDER SPECIALIST with earth connector button

# **BALL JOINT VICE - JAWS 50 MM**FOR SCREWING

# ▶ Product family 9-215





Suitable for all workbenches and work tables, space dimensions  $150 \times 106$  mm. The vice can be connected to any table tops with four bore holes (Ø 9 mm). A drilling drawing can be downloaded from the website. A small pressure of the lever is sufficient and the clamped workpiece can be fixed steplessly and in any convenient working position.

Clamping pressure: 1470 N
Clamping width: 70 mm
Clamping depth: 38 mm
Jaw width: 50 mm



Position as shown approx 220 x 180 x 115 mm (dimensions for orientation)



Weight 1310 g



# VARIANTS AND SETS







Art-No.	9-215	9-215-ESD		
Colour variation and coating	grey metallic metallic	black, dissipative		
Jaws glued on	<b>✓</b>	<b>✓</b>		
Velcro jaws (Hook Dual Lock™)	=	-		
Dissipative	-	10 <sup>7</sup> - 10 <sup>8</sup> Ohm		
Spare parts	-	-		
Application specialty	BASIC	SPECIALIST with earth connector button		





earth connector button



# **PROTECTIVE JAWS VELCRO (HOOKS)**

Quick change protective jaws 50 mm

firm, stable, precise and pinpoint connection different versions, scope of delivery 2 pieces (one pair)

Art-No.	Material
9-900-K50-KORK	cork oak
9-900-K50-FILZ	felt lint-free
9-900-K50-LEDER	genuine leather hard-wearing
9-900-K50-KST	plastic ribbed (waffle pattern)
9-900-K50-KSTG	plastic smooth

completely: 9-900-K50-SET (5 pair)

including replacement Velcro pads 10 pieces (Art: KLETT-K050x25)



Quick change protective jaws 50 mm

firm, stable, precise and pinpoint connection different versions, scope of delivery 2 pieces (one pair)

	Art-No.	Material
EW	9-900-K50-KSTP	plastic prisms
EW	9-900-K50-ALP	alu prisms
EW	9-900-K50-ALG	alu with rubber, abrasion resistant

# **GLUING**

# ▶ Protective jaws 50 mm

with a smooth plastic surface to stick on yourself various designs, scope of delivery 2 pieces (one pair)

	Art-No.	Material
NEW	9-900-E50-KORK	cork oak
NEW	9-900-E50-FILZ	felt lint-free
NEW	9-900-E50-LEDER	genuine leather hard-wearing
11.211	9-900-E50	plastic ribbed (waffle pattern)
	9-900-E50-ESD	plastic smooth

completely: 9-900-E50-SET (5 pair) including lever tool (Art: 2-123 ESD)





#### **FLEXBLE**

By simply pressing together - small mushroom heads interlocked - a very firm but removable connection is created. The snap fastener can be crossed, staggered or overlapped. It provides a permanent fastening that will not loosen even with sustained shaking. Dual Lock™ technology (3M™) Velcro instructions see YouTube video BERNSTEIN vice jaws.







# DURABLE

For continuous use, we recommend replacement jaws for gluing in. The replacement jaws, once fitted, provide a comfortable, safe and durable solution.



# **BALL JOINT VICE - JAWS 50 MM**WITH MAGNETS

## ▶ Ball Joint Vice 9-287





With 4 high-performance magnets (including protective caps) for fixing to steel surfaces. Holding force 32 kg horizontal, 15 kg vertical (magnets without caps). The magnets are firmly connected to the base by screws. A small lever pressure is sufficient and the clamped workpiece can be fixed steplessly and in any practical working position.

Clamping pressure: 1470 N
Clamping width: 70 mm
Clamping depth: 38 mm
Jaw width: 50 mm



Position as shown approx 240 x 170 x 75 mm (dimensions for orientation)



Weight 1310 g

2020 awarded with the **EISEN-AWARD** 



# BALL JOINT VICE - JAWS 100 MM FOR CLAMPING

# ▶ Ball Joint Vice 9-290





With a jaw width of 100 mm, the ball joint vice 4.0 is the largest ball joint vice on the market. It convinces with its unique selling points, the **dowel pins**, its **changeable jaws**, its **center eye** (spirit lever) and the very high ball clamping force. For workbenches or tabletops with a maximum table thickness of 80 mm.

Clamping pressure: 12000 N
Clamping width: 100 mm
Clamping depth: 50 mm
Jaw width: 100 mm



Position as shown approx 400 x 220 x 200 mm (dimensions for orientation)



Weight 5500 g



#### ▶ 9-290-SET1

consisting of:

9-290 Ball joint vice SPANNFIX 4.0 for clamping 9-900-SET-100 SET protective jaws 100 mm m





# FOR SCREWING ON OR MAGNETIC - JAWS 100 MM

# ▶ Product family 9-292 and 9-297



The vice can be screwed to the workbench through 4 through holes ( $152 \times 151$  mm space) or fixed to steel surfaces with 4 magnets. The 4 heavy-duty magnets with protective caps have a holding force of 32 kg horizontally and 15 kg vertically (magnets without caps). The magnets are firmly connected to the housing by screws. A tapping drawing can be downloaded from the website.



Clamping pressure: 12000 N
Clamping width: 100 mm
Clamping depth: 50 mm
Jaw width: 100 mm



Position as shown approx 290 x 160 x 190 mm (dimensions for orientation)



Weight 4720 g



# **VARIANTS**





Art-No.	9-292	9-297
Colour variation and coating	grey metallic	grey metallic
Bore holes	<b>✓</b>	-
High performance magnets	-	<b>✓</b>

Application specialty

for screwing on

Magnetic base for steel surfaces

# SPARE PARTS DOWEL PINS









Art-No.	9-900-S1000	9-900-S1002	9-900-S1003	9-900-S1004
Material	steel	plastic	steel	plastic
With integrated spirit level	<b>✓</b>	-	-	-
Weight	100 g	18 g	172 g	32 g
Mounting	Ø8mm	Ø 8 mm	Ø 8 mm	Ø 8 mm
Height	approx 15 mm	approx 15 mm	approx 30 mm	approx 30 mm

## ▶ 9-900-0773-1

# Changeable steel jaws 100 mm

Can be used on both sides, smooth surface and profile side for pipe clamping or round material; with stepped edge (groove) for square material or thick sheets. Dimensions  $100 \times 30 \times 6$  mm, weight 83 g



# **PROTECTIVE JAWS**

in various designs, with magnetic strips or magnetic dots suitable for clamping scratch and impact sensitive parts, scope of delivery 2 pieces (one pair)



125 mm 150 mm Cork (yellow prismatic plastic jaws with abrasion-resistant, soft cork oak coating) 9-900-S4100 9-900-S4125 9-900-S4150 Leather (yellow prismatic plastic jaws with hard-wearing genuine leather covering) 9-900-S5100 9-900-S5125 9-900-S5150 Felt (yellow prismatic plastic jaws with robust, lint-free felt fleece fibre covering) 9-900-S6100 9-900-S6125 9-900-S6150 Plastic (yellow prismatic plastic jaws, smooth on one side, robust hard plastic) 9-900-S7100 9-900-S7125 9-900-S7150 Rubber (aluminium jaws with profiled rubber coating) 9-900-S8100 9-900-S8125 9-900-S8150 9-900-S9125 Aluminium prisms (aluminium jaws with prisms and angular clamping grooves) 9-900-S9100 9-900-S9150

# Protective jaws set 6 pcs

Packed in a plastic bag that can be hung on the wall or rolled up to save space. Bag dimensions: approx. 430 x 390 mm

#### Content

Pocket, 6 pockets 80x130 mm Plastic protective jaws cork (pair) Plastic protective jaws leather (pair) Plastic protective jaws felt (pair) Plastic protective jaws (pair) Aluminum protective jaws rubber (pair) Aluminum protective jaws prisms (pair)



100 mm



100 mm	125 mm	150 mm
9-900-SET-100	9-900-SET-125	9-900-SET-150

# **SPARE PARTS ADHESIVE STRIPS**

For all types of vice protective jaws or replacement jaws to stick on, as protection for sensitive parts that have to be fixed, clamped and processed.



		50 mm	100 mm	125 mm	150 mm
NEW	Velcro self-adhesive (VE10)	KLETT-050x25x3	-	-	-
NEW	Cork self-adhesive (VE10)	KORK-050x25x3	KORK-100x25x3	KORK-125x25x3	KORK-150x25x3
NEW	Leather self-adhesive VE10)	LEDER-050x25x3	LEDER-100x25x3	LEDER-125x25x3	LEDER-150x25x3
NEW	Felt self-adhesive (VE10)	FILZ-050x25x3	FILZ-100x25x3	FILZ-125x25x3	FILZ-150x25x3

# **BALL JOINT HOLDER** FOR CLAMPING

# ▶ Product family 9-251





For workbenches or tabletops with a maximum table thickness of 80 mm. The holder can be quickly and easily connect to any workbench or tabletop thanks to its smooth-running table clamp. A little pressure of the lever is enough and that the clamped workpiece can be fixed steplessly and in any practical working position.

Ball size: Ø 40 mm

Holding force: approx 45 kg (441N) Clamping range: approx 80 mm



Position as shown approx 220 x 170 x 75 mm (dimensions for orientation)



Weight 940 g



# **VARIANTS**

Included in delivery: schnorr washer, lock nut and lock nut for the thread.







Art-No.	9-251	9-251-SW	9-251-ESD
Colour variation and coating	grey metallic	black matt	black, dissipative
Thread pin	M12 x 1.5 mm	M12 x 1.5 mm	M12 x 1.5 mm
Thread length	20 mm	20 mm	20 mm
Dissipative	-	-	10 <sup>7</sup> - 10 <sup>8</sup> Ohm
Application specialty	BASIC	BASIC	SPECIALIST with earth connector button

A quick clamping to optimally align cameras, monitors, sensors or measuring instruments. Used in woodworking as carving plates, carving balls or various clamping and holding tool. Wide variety of clamping and holding devices are screwed on for instrument and model making. Suitable adapters and extensions of all types can be screwed on via the thread on the ball. An optimal hold to repair e-scooters, e-bikes and bicycles free-floating. Used for years in universities, research centers and laboratories have appreciated the many possible applications.



# **BALL JOINT HOLDER** FOR SCREWING

# Product family 9-261 and 9-262



Suitable for all workbenches and tables. Place dimensions  $150 \times 106$  mm. The holder can be screwed on with four through holes ( $\emptyset$  9 mm). A drilling drawing can be downloaded from the website. A small lever pressure is sufficient to fix the ball steplessly and in any practical working position.





Ball size: Ø 40 mm

Holding force: approx 45 kg (441N)

Bore hols: Ø 9 mm



Position as shown 90 x 180 x 110 mm (dimensions for orientation)



Weight 850 g

# **VARIANTS**

Included in delivery: schnorr washer, lock nut and lock nut for the thread.



Art-No.	9-261	9-261-SW	9-261-ESD	9-262	9-262-SW
Colour variation and coating	grey metallic	black matt	black, dissipative	grey metallic	black matt
Thread pin	M12 x 1.5 mm	M12 x 1.5 mm	M12 x 1.5 mm	M12 x 1.5 mm	M12 x 1.5 mm
Thread length	20 mm	20 mm	20 mm	25 mm	25 mm
Support surface	Ø 20 mm	Ø 20 mm	Ø 20 mm	Ø 36 mm	Ø 36 mm
Dissipative	-	-	10 <sup>7</sup> - 10 <sup>8</sup> Ohm	-	-
Application specialty	BASIC	BASIC	SPECIALIST with earth connector button	EXTRA with large pin	EXTRA with large pin







90°

# **BALL JOINT HOLDER** FOR SCREWING ON OR MAGNETIC

# ▶ Product family 9-281 and 9-284-SW





This slim holder is the lightweight among the BERNSTEIN holders. At 110 x 72 mm, it can be screwed onto any tabletop with 4 through holes (Ø 6.5 mm) to save space, or fixed to steel surfaces with 4 magnets. A drilling drawing can be downloaded from the website. The 4 heavy-duty magnets with protective caps have a holding force of 32 kg horizontally and 15 kg vertically (magnets without caps). The magnets are firmly connected to the base by screws.

Ø 40 mm Ball size:

approx 45 kg (441N) Holding force:



80 x 170 x 75 mm (dimensions for orientation)



Weight 650 g

# **VARIANTS**

Included in delivery: schnorr washer, lock nut and lock nut for the thread.









Art-No.	9-281	9-281-SW	9-281-ESD	9-284	9-284-SW
Colour variation and coating	grey metallic	black matt	black, dissipative	grey metallic	black matt
Thread pin	M12 x 1.5 mm	M12 x 1.5 mm	M12 x 1.5 mm	M12 x 1.5 mm	M12 x 1.5 mm
Thread length	20 mm	20 mm	20 mm	20 mm	20 mm
Dissipative	-	-	10 <sup>7</sup> - 10 <sup>8</sup> Ohm	-	-
High performance magnets	-	-	-	<b>✓</b>	<b>✓</b>
			00500000		

**BASIC** 



SPECIALIST with earth connector button Magnetic base for steel surfaces

Magnetic base for steel surfaces







# **BALL JOINT HOLDER FOR HEAVY PARTS**

Included in delivery: schnorr washer, lock nut and lock nut for the thread.

# ▶ Product family 9-291



For workbenches or tabletops with a maximum table thickness of 80 mm. The holder can be quickly and easily connect to any workbench or tabletop thanks to its smooth-running table clamp. A little pressure of the lever is enough and that the clamped workpiece can be fixed steplessly and in any practical working position.

Ball size: Ø 60 mm

Holding force: approx 45 kg (441N) Clamping range: approx 80 mm



Position as shown 240 x 220 x 200 mm (dimensions for orientation)



Weight 3000 g



# ▶ Product family 9-293/9-294/9-296



The holder can be screwed to the workbench through 4 through holes (space dimensions  $152 \times 151$  mm), or it can be fixed to steel surfaces with 4 magnets. The 4 high-performance magnets with protective caps have a holding force of 32 kg horizontally and 15 kg vertically (magnets without caps). The magnets are firmly connected to the housing with screws. A drilling drawing can be downloaded from the website.

Ball size: Ø 60 mm

Holding force: approx140 kg (1372N)





Position as shown 150 x 230 x 150 mm (dimensions for orientation)



Weight 1850 g



Art-No.	9-293	9-294	9-296
Colour variation and coating	grey metallic	black matt	black, dissipative
Thread pin	M12 x 1.5 mm	M12 x 1.5 mm	M12 x 1.5 mm
Thread length	Ø 20 mm	Ø 25 mm	Ø 20 mm
Application specialty	BASIC BIG	EXTRA with large pin	Magnetic base for steel surfaces





# **BALL JOINT HOLDER SINGLE PARTS VARIO**



All these accessories can be connected to the holders (base parts) via the M12 screw connection.

#### Vice Head

Jaw width 50 mm, clamping pressure 1470 N clamping width 70 mm, clamping depth 38 mm Glued-in ESD conductive plastic jaws corrugated (waffle iron pattern) Dimensions for orientation 180 x 70 x 50 mm, weight 560 g

- ▶ 9-252 Colour dark gray metallic, surface structure
- ▶ 9-252 ESD Colour black ESD dissipative 107 108 Ohm, EPA suitable



# 9-253-ESD PCB / Circuit Board Holder

two black ESD holders with suspension for sensitive circuit boards adjustable span up to 270 mm, with internal groove for a tight fit of the PCB Height of the support rods 70 mm, steel parts nickel-plated Dimensions for orientation 310 x 120 x 30 mm, weight 280 g

stable assembly frame rotatable, PCB holder for SMD / THT fits on quick turn device 9-257 or angle adapter 9-255 mostly used with 9-256 cover plate



## ▶ 9-256 Cover plate ESD soft foam for THT equipment

is pushed from the right or left onto 9-253, so that the components to be soldered are held in the right place by the foam, so that after the circuit board holder has been turned all parts and components remain in their place Soft foam size 240 x 130 mm, thickness 20 mm ESD plastic, ESD foam, chrome-plated steel parts Overall dimensions for orientation 280 x 130 x 20 mm, weight 260 g



# ▶ 9-257-ESD Quick turn device for 9-253

enables the circuit board holder with the circuit board to be rotated by 180  $^\circ$  at lightning speed without loosening an adjusting screw, stops automatically due to the rotation limiter, Color black ESD dissipative 107 - 108 Ohm, EPA suitable Orientation dimensions approx. 280 x 130 x 20 mm, weight 270 g



## ▶ 9-255-ESD Angle adapter turning circle extension

to expand the turning circle of the joint ball in the ball joint holder with easy-to-use adjusting screw for quick tightening and loosening Color black ESD dissipative 107 - 108 Ohm, EPA suitable Orientation dimensions approx. 100 x 55 mm, weight 95 g



# Universal machining plate to screw on

3 elongated holes 62 x 6 mm for fastening individual devices Slots for common standard screws up to M12 for setting up stops, tuners, line transformers, prototypes and much more is also often used in woodworking Orientation dimensions Ø100 x 14 mm, weight 95 g

- ▶ 9-254 Colour dark gray metallic, surface structure
- ▶ 9-254-ESD Colour black ESD dissipative 107 108 Ohm, EPA suitable



9-254

9-254-ESD

# **ESD BALL JOINT HOLDER**

Included in delivery: schnorr washer, lock nut and lock nut for the thread.





These ball joint holders have a dissipative surface with a leakage resistance between  $10^7\,$  -  $10^8\,$  Ohm Ohm. EPA suitable (for electrostatically protected areas, ESD workplace, ESD protection zone) for working on and with sensitive parts and components. The base sections can be connected to the grounding point on the back with a  $10\,$ mm push button.





Art-No.	9-251-ESD-SET1	9-261-ESD-SET1
Ball Joint Holder	9-251-ESD	9-261-ESD
9-343-1 ESD grounding cable 1 MOhm, 1.8 m	<b>✓</b>	<b>✓</b>
9-359-2 ESD Earthing plug 2 x 1 MOhm, screw connection M5 for 4 mm eyelet	<b>✓</b>	<b>✓</b>

# **ESD BALL JOINT HOLDER VARIO**

With the SPANNFIX VARIO, PCBs / circuit boards up to a length of 270 mm can be clamped. Thanks to the infinitely adjustable ball, the PCB can be positioned and held securely in all directions. Quick turning of the PCBs is possible thanks to the adapter. Very useful as a third hand when soldering or assembling, sensible clamping and holding device with quick release mechanism.

Thanks to the practical **cover plate\*** all inserted components are held in place when turning the PCB and can be soldered conveniently from the other side.







Art-No.	9-240-ESD	9-270-ESD	9-250-ESD
Ball Joint Holder	9-251-ESD	9-251-ESD	9-251-ESD
9-343-1 ESD grounding cable 1 MOhm, 1.8 m	<b>✓</b>	<b>✓</b>	✓
9-359-2 ESD Earthing plug 2 x 1 MOhm	-	-	-
9-253-ESD PCB Holder	<b>✓</b>	<b>✓</b>	✓
9-255-ESD Angular Adapter	<b>✓</b>	-	-
9-257-ESD Rapid turning device	-	<b>✓</b>	<b>✓</b>
9-256-ESD Cover Plate*	-	<b>✓</b>	-
9-252-ESD Vice head - jaws 50 mm	-	-	✓
9-254-ESD Universal screw-on plate	-	-	

# TERMS OF SALE AND DELIVERY

#### **GENERAL**

The nature and scope of delivery are specified in the order confirmation. The following delivery terms shall apply to all deliveries to be carried out by us. Purchasing conditions of the customer do not oblige us, even if we do not expressly contradict this. Verbal or by intercom agreements made require our written confirmation. Obvious mistakes in offers, order confirmations, etc. are expressly reserved and can be considered at any time. We are entitled to process any data relating to the business relationship or in connection with the same concerning buyers, whether the buyer itself or third parties, within the framework of the Federal Data Protection Act.

## **OFFER**

Our offers are permissive, an order is deemed to be granted if confirmed by us in writing. PRICES, DELIVERY BASIS AND PACKAGING Unless otherwise agreed, the prices in Euros, ex works, are exclusive packaging. In the case of special packaging regulations of the customer, the additional costs involved are invoiced. Packaging is not accepted.

#### **DELIVERY**

The delivery takes place at the expense and risk of the buyer without regard to who bears the freight costs. We reserve the right to place orders in partial deliveries. For custom-made products, excess or short deliveries of up to 10% are permitted.

#### **DELIVERY TIME**

The delivery time begins upon receipt of all information required for the execution of the order. We endeavor to comply with the delivery time specified in the order confirmation. No claims of any kind can be asserted from a delayed delivery.

#### **COMPLAINTS**

Complaints can only be accepted within 8 days after receiving of the goods.

The shape and colour of the tool may differ from the item shown in the catalogue.

## **GUARANTEE**

For all BERNSTEIN tools, which are unusable due to proven material or manufacturing defects, we deliver within one year after deliver a replacement. This free replacement service is excluded if the tools have become unusable due to natural wear or improper handling.

#### **DISCLAIMER**

We do not assume any guarantee for the suitability of our products for the intended purpose of the customer. For damages caused by unsuitable or improper use, commissioning by the customer or third parties, and for the natural wear and tear we assume no guarantee. Any claims for damages, irrespective of the legal basis, as well as, in particular, the liability by tort (product liability) are excluded to the extent permitted by law.

#### **PAYMENT**

Our invoices are payable within 10 days of the invoice date with 2% discount or in 30 days net, unless otherwise agreed in the order confirmation.

#### RESERVATION OF TITLE

We reserve the title to all goods delivered by us until the buyer has paid all claims arising from the business relationship. The buyer is entitled to resell the reserved goods in ordinary business transactions. In the case of resale, the buyer has to reserve the ownership of the sold goods on the same terms as his customer. The purchaser hereby assigns to us the purchase price claim against the buyer from the resale.

## **FULFILLMENT AND JURISDICTION**

Place of performance and jurisdiction for delivery and payment is Remscheid. In any case, only German law shall apply, with the exclusion of any foreign law.

## ONLINE DISPUTE RESOLUTION

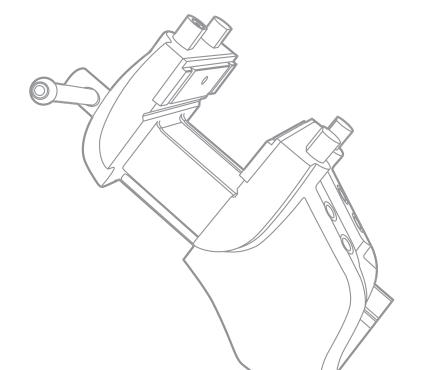
The European Commission provides a platform for online dispute resolutions (ODR) which can be accessed at

#### https://ec.europa.eu/consumers/odr/

In order to settle dispute arising from a contractual relationship with a consumer or from whether such a contractual relationship exists at all, we will participate in dispute settlement proceedings before a consumer dispute resolution body. Consumers can contact their national European Consumer Centre in this regard. The respective contact details of the individual ECCs can be found at

https://www.evz.de/en/alternative-dispute-resolution/adr-in-europe/.







A little story about the word amber (BERNSTEIN)

The greek word for amber is "elektron": the root of today's term electronics. Even the greeks discovered the special feature of amber: by rubbing the natural amber can be electrostatically charged. The charged stone can attract dust particles.

Today you can use this property to check the authenticity of an amber. If it is real, it can be tested through charge rubbing on a cotton cloth.

You can also wear it as jewellery: it should protect from evil magic and give joy of life.

Just like our high-quality BERNSTEIN ESD Tools - them protect against electrostatics and give joy with the daily work.

(Autor Max Walter Hartmut Blombach)

# **BERNSTEIN**

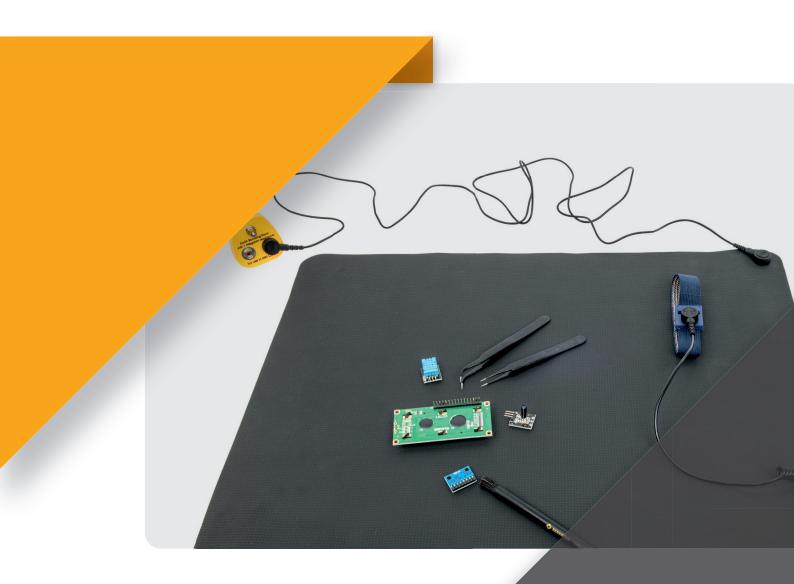
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Industriehof Trecknase 1 42897 Remscheid

Tel. + 49 (0) 2191 - 9650 - 0 Fax + 49 (0) 2191 - 9650 - 30

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ESD WORKSTATION
ESD HAND TOOLS
+ USEFUL HELPERS

Vers.01

## **GET IN CONTACT WITH US**

# **BERNSTEIN**

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**VISIT US ON THE WEB** 

Product videos and blog posts round off our online offering. Furthermore, we also respect the traditional sales channel via specialist retailers and offer the option to present your webshop as an online sales platform for products by BERNSTEIN.

We update our product information on a regular basis and automatically using our Product Information System. This enables the quick

and up-to-date compilation of customer-speci-

fic data feeds for your own digital sale activities.

Take advantage of this service and always keep

Bernstein product information up to date!

# **SYMBOL LEGEND**



New product



Number of tools in sets



Weight



Dimensions



ESD protection (EPA suitable)



VDE tested







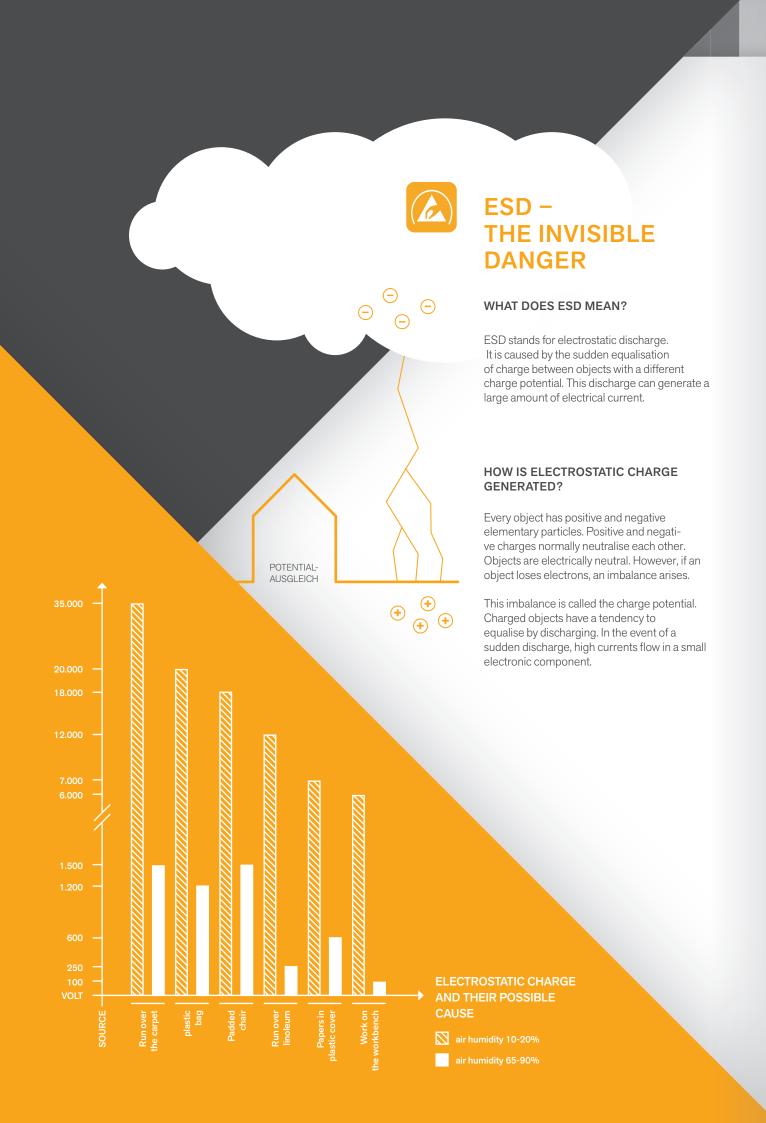
# ESD WORKSTATION ESD HAND TOOLS + USEFUL HELPERS

On the following pages we start with the specialized topic "ESD - the invisible danger" a clear manual on the subject of ESD and safety at the workplace. Here you will find information on discharge resistances, symbol explanations, notes and tips on setting up an ESD workplace. Available on our website as PDF download: ESD - GUIDE 2020 - WHAT IS ESD?

Pay attention to the **HANDLING SETS** with grounding mats, these are completely assembled sets to make your choice easier. Then we would like to draw your attention to our **new ESD tool holders**, which create order at every workplace. A clean and tidy work area is efficient and your tools will thank you with a long service life.

Furthermore, we offer various products and endowment of a well-prepared and safe workplace.

Here you will find ESD and NOT ESD hand tools, please pay attention to the ESD symbol if necessary.



# ELECTROSTATIC DISCHARGE IN EVERYDAY LIFE

The most visible form of electrostatic discharge is lightning during a storm, when clouds with different potentials abruptly discharge. All of us have at one point experienced a sudden discharge, such as after walking across a carpeted floor and then touching the handle of a door.







# FOLLOWS ELECTROSTATIC UNLOADING OF COMPONENTS

Date of damage detection	value	efforts
component level	1x	part costs
		production stop
		part costs
assembled circuit board	10x	production stop
		error search
		repair costs
		part costs
		production stop
finished, tested product	100x	error search
		repair costs
		inspection costs
		delivery delays
		Replacement/repair costs
delivered product	1000x	Field service / delivery costs
		compensation
		loss of reputation

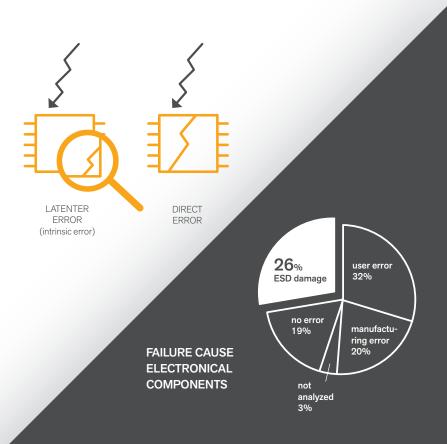
# **COMPONENT SENSITIVITY**

The ESD sensitivity of electronic components is rising as component parts are increasingly miniaturised. Moreover, ever smaller components offer less and less space for protective circuits on microchips. In order to save energy, components need to get by on less power. A discharge of just 50 volts is enough to cause damage to a blue LED, for example. SMDs are already at risk of damage at voltages higher than 100 V. In contrast to this, the human ability to perceive ESD is very limited.

Discharges are first noticeable from 3500 volts, audible from 4500 volts and visible from 10000 volts.

# **DETECTING AND ELIMINATING FAULTS**

Components damaged by ESD cannot normally be seen with the naked eye. Even tiny discharges can lead to complete failure. These direct failures can usually be identified during quality control. So-called latent failures are especially critical, as they only become apparent when products are in operation. The time and effort needed to eliminate these intrinsic failures cause the greatest costs. ESD damage generally concerns latent damage. It is therefore absolutely essential that the appropriate precautions are taken.





# **HOW TO PROTECT** YOURSELF AND YOUR COMPONENTS

# **HOW CAN YOU PROTECT** COMPONENTS?

You can protect ESD-sensitive components by storing, handling and packing them in a completely ESD protected environment. Precautionary measures are taken in these areas to eliminate electrostatic build-up. The difference in potential is neutralised by slowly dissipating the charge, thereby preventing a sudden discharge. This abrupt release constitutes the real danger. A very short and rapid discharge generates a very high discharge current.

## MARKINGS AND SYMBOLS

It is important to identify ESD-sensitive components, ESD-safe working areas and ESD-safe objects. Safe objects are identified by a black triangle on a yellow background with a stylised hand surrounded by a circular arc. In addition, the acronym EPA (ESD protected area) is added for ESD protected areas. For ESD-sensitive components, there is no black circular arc and there is a line running through the hand to indicate ESD-sensitive products. It also makes sense to use ESD inspection tags which display the date when the object was last inspected for protective effectiveness.



**GROUNDING POINT** 

marked grounding point for all ESD components

**SYMBOLS AND** YOUR MEANING



**ESD SAFED** 

marked ESD safe

tools and objects

ESD DANGERED

marked endangered components and domains

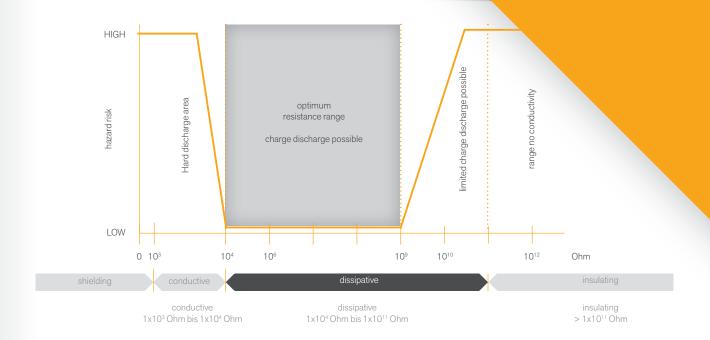


ESD protected area

# WHAT DOES THE NORM SAY?

DIN - EN 61340-5-1/VDE 0300, Part 5-1 "Protection of electronic devices from electrostatic phenomena" General requirements; DIN - EN 61340-5-2 / VDE 0300, Part 5-2 "Protection of electronic devices from electrostatic phenomena", User guide; DIN - EN 61340-2-1 / VDE 0300, Part 2-1 "Measurement methods - Ability of materials and products to dissipate static electric charge"; DIN - EN 61340-4-1/ VDE 0300, Part 4-1 "Standard test methods for specific applications - Electrical resistance of floor coverings and installed floors"; DIN - EN 61340-4-3/VDE 0300, Part 4-3 "Standard test methods for specific applications - Footwear"; DIN - EN 61340-4-5/VDE 0300, Part 4-5 "Standard test methods for specific applications - Methods for characterizing the electrostatic protection of footwear and flooring in combination with a person".

marked ESD protected



#### SURFACE RESISTANCES

The effectiveness of materials is classified according to their resistance properties. Here, surface resistance plays a particularly important role: it is the electrical resistance of a conductive layer on the surface. Depending on the resistance properties, a distinction is made between shielding materials, electrically conductive materials, electrically dissipative materials and insulating materials.

## MEASUREMENT OF RESISTANCES IN THE ESD AREA

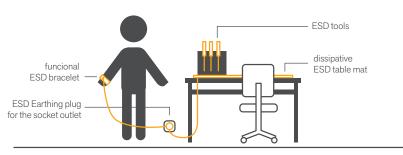
In addition to surface resistance, the following resistances are also important: the bleeder resistance (resistance against earth/protective conductor), volume resistance (resistance measured at opposite points of a material) and point-to-point resistance (resistance between two electrodes).

## PERSONS AND WORKPLACES EQUIPMENT

If ESD-sensitive components are being handled, people and workplace equipment need to be ESD compliant. The primary focus for people is ESD-compliant clothing (shoes, coats, antistatic wrist straps), for workplace equipment, conductive flooring is just as important as ESD-compliant workbenches and chairs. The most important measure is the proper grounding of personnel.

#### **ESD COMPLIANT TOOL**

ESD-compliant tools are also just as important. In the Bernstein catalogue, you will find a comprehensive range of ESD-compliant tools for use in ESD protected areas. Often work needs to be performed outside of these protected areas, in which ESD-sensitive components need to be installed. We offer solutions here too, which are suitable for mobile use, such as table covers, grounding plugs for power sockets, clamping equipment and hand tools.



Simple design of an ESD-safe workstation for mobile use



ESD-safe execution of a work schedule in the EPA area



## HOW YOU SET UP YOUR WORKPLACE IN A ESD-SECURE WAY

## STATIONARY WORKPLACE - WORK IN THE EPA AREA

An ESD-safe workplace is indispensable in order to safely and properly carry out work and measurements on electrostatically sensitive components.

In fixed installations, such as in EPAs (electrostatic discharge protected areas), all elements that come into contact with people and components should be electrostatically conductive.

Foot mats, workplace pads, large assemblies and personnel grounding are earthed by so-called earth bonding plugs, while it is important to pay attention to ESD logos for clothing and tools.

## MOBILE WORKPLACE - WORK ON THE ROAD

It doesn't happen often that fully assembled components or assemblies can be handled, repaired or serviced in ESD protected areas. This is where so-called ESD workplaces are needed.

The traditional mobile workplace (also called a handling set) consists of a workplace pad, a wrist band for grounding of personnel and an earthing cable with a earthing plug.

If there are no plug sockets available, the earthing cable can also be attached to grounded metal surfaces using a crocodile clip.

When properly set up, static electricity is discharged via the mat. But when using this method, it is important to make sure that the hand-to-earth resistance is less than  $3.5 \times 10^7$  ohms.

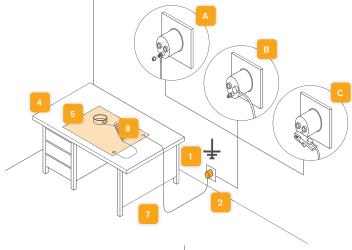
#### MAINTENANCE AND CLEANING

Grounding connections, mats and earthing plugs should be inspected on a weekly basis and wrist bands every day.

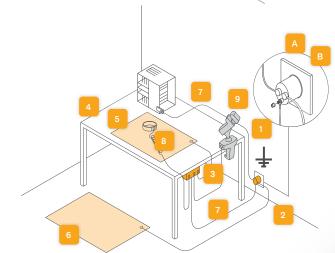
Special cleaning agent must be used when cleaning them as conventional household products may leave behind an insulating coating.



# CORRECT STRUCTURE OF THE COMPONENTS ON MOBILE WORKPLACE



# CORRECT STRUCTURE OF THE COMPONENTS ON STATIONARY WORKPLACE



Explanations to the graphics:

	BESTANDTEILE	PASSENDE PRODUKTE VON BERNSTEIN
1	grounding point	_
2	earthing	9-359-2 (for EU sockets) 9-353 (for clamping on metal)
3	earthing module	9-359-1 (for clamping on table)
4	workplace	_
5	working mat	9-354-100, 9-360-0, 9-361-0, 9-367-0, 2291, 2301, 9-334
6	floor mat	9-361-0, 9-367-0
7	earthing cables	9-343-1, 9-344-1
8	personal groun-	9-341, 9-342

9-205 ESD more page 36

Our workplace requirements can also be used as shelf supports

## EARTH VARIANTS AT THE EARTH PLUG

ding/bracelet Components and

devices

- A by thread
- B by button
- C by clip

On the following pages you will find an overview and more detailed information on suitable products.



## **ESD GROUNDING MATS**



In order to be able to carry out work and measurements on electrostatically sensitive components safely and correctly, an ESD safe workplace is essential.

All mats are EPA suitable, for working in electrostatically protected areas (ESD workplace/ESD protection zone).

#### ▶ 9-354-100 ESD table mat 500 x 400 x 0.5 mm with 2 press buttons

Weight: 130 g

Dissapative  $10^8$  Ohm, surface resistance according to DIN IEC 61340-4-1 with  $2 \times 10$  mm press buttons, for connection to an earthing plug, ideal for service work and mobile use



#### ▶ 9-366-0 ESD table mat black 610 x 450 x 1.5 mm

Weight: 640 g

#### ▶ 9-360-0 ESD table mat black 900 x 610 x 1.5 mm

Weight: 1000 g

Technical data: Abrasion (load: 5N) 130 mm³, hardness 80 Shore A, impression test 0.1 mm, temperature range of application – up to +60 °C, ESD mat suitable for table, shelf or floor resistance  $10^8$  to  $10^7$  ohm (back side  $10^3$  to  $10^4$  ohm), top and back side black electrostatically synthetic rubber, with 2 press buttons 10 mm for ground connection, solder resistant, extremely wear-resistant, permanently elastic, halogen free



#### ▶ 9-367-0 ESD table mat grey 610 x 450 x 2 mm

Weight: 700 g

#### ▶ 9-361-0 ESD table mat grey 900 x 610 x 2 mm

Weight: 1400 g

Technical data: Abrasion (load: 5N) 130 mm³, hardness 78 Shore A, impression test 0.1 mm, light reflectance 19% - 29%, temperature range of application - up to +60 °C, resistance  $10^6$  to  $10^7$  ohm (back side  $10^3$  to  $10^4$  ohm), Platinum gray on top, black back of electrostatically dissipative synthetic rubber, with 2 press buttons 10 mm for ground connection, solder-resistant workplace support, heat resistant, abrasion resistant, scratch proof, extremely wear-resistant, permanently elastic, halogen free



## HANDLING SETS WITH ESD GROUNDING MATS

	Grounding mat Size		<b>54-0</b> -00 mm		66-0 150 mm		60-0 610 mm		<b>61-0</b> 610 mm	9-367-0 610 x 450 mm
				0		0		•	1	6
	Thickness	0.5	mm	1.5	mm	1.5	mm	2.0	mm	2.0 mm
+	SET bracelt + spiral cord	9-342 (blue)	9-341 (yellow)	9-342 (blue)	9-341 (yellow)	9-342 (blue)	9-341 (yellow)	9-342 (blue)	9-341 (yellow)	
+	Grounding cable	9-343-1	9-344-1	9-343-1	9-344-1	9-343-1	9-344-1	9-343-1	9-344-1	-
+	Crocodile clip	9-353	_	9-353	_	9-353	_	9-353	_	-
+	Grounding plug / Earth bonding point	_	9-359-2	_	9-359-2	-	9-359-2	-	9-359-1 9-359-2	9-359-2 9-343-1
=	SET Item No.	9-354	9-354-A	9-366	9-366-A	9-360	9-360-A	9-361	9-361-A	9-367

## **ESD MOBILE WORKING MAPS**

#### ▶ 2301

#### ESD dissipative workplace pad with 20 tool loops

Dissipative workplace pad with 20 tool loops for various uses.

The foldable tool folder made from ESD material also serves as an electrically dissipative workplace pad and, when unfolded, is  $680 \times 660 \times 35$  mm. The bleeder resistance is approx.  $10^8$  ohms in accordance with DIN 53482. **The workplace pad is equipped with three press studs for connecting a contact wrist band and an earthing cable.** The tool folder can be closed with two additional press studs and used as a tool wallet. The large support surface  $(660 \times 435 \text{ mm})$  offers enough space to handle sensitive electronic components safely. For transport, the bag can be quickly folded to a handy size.

Locating surface: 660 x 435 mm Weight: 525 g



#### ▶ 2291

#### ESD dissipative workplace pad with 22 tool loops

A foldable tool bag with integrated work surface for various ESD applications. Handy tool flap pocket made of dissipative synthetic leather. The bag has a total of 22 rubber loops for holding tools and other parts Thanks to the new design, the tool area can be set up with a Velcro loop, which significantly improves access to the tools. **The bag has two press studs that can be connected to a wrist strap and a earthing cable (included), which allows each workstation to be converted to an ESD workstation.** The large support surface (480 x 340 mm) offers enough space to safely handle sensitive electronic components. For transport, the bag can be quickly folded to a handy size and closed with a rubber band.

Locating surface: 480 x 340 mm Weight: 480 g



#### ▶ 9-334

#### ESD assembly grid mat

material natural rubber, electrically conductive  $10^3$  bis  $10^4$  Ohm tough mat as a stress-relieving tray, for SMD repairs printed circuit boards (PCBs) or devices

Dimension  $610 \times 370 \times 20$  (cell size  $50 \times 45$  mm) Weight: 3200 g



## **GROUNDING-, EARTH BONDING POINT**

EPA suitable. For working in electrostatically protected areas (ESD workplace / ESD protection zone).



#### ▶ 9-359-1

#### ESD earth bonding plug 3 x 10 mm with cable and eyelet

- EPB earth bonding point
- for table screw connection, angled (incl. 2 screws)
- as a ground connection point for personal grounding
- cable length 2 m with 4 mm loop
- 3 x 1 megaohm safety resistance, 10 mm press buttons Weight: 45 g

#### ▶ 9-359-2

#### ESD earth bonding plug 2 x 1 MOhm and M5 connection

- EPB earth bonding point
- Earthing plug with cable for EU sockets
- as a ground connection point for personal grounding
- ESD earth bonding plug 2 x 1 megaohm and M5 connection, 10 mm press buttons
- 1x screw connection M5 for 4 mm eyelet
- suitable cable: 9-343-1, 9-344-1

Weight: 33 g

#### ▶ 9-353

#### ESD crocodile clip 1 x 10 mm

- with banana plug socket, 10mm press button
- press buttons 10 mm

Weight: 18 g

### ▶ 9-343-1

#### ESD grounding cable 2 x 10 mm connection

- for connection between table and floor coverings and for connection to an earth potential.
- with 1 megaohm safety resistance
- 2 press buttons 10 mm for mats or floor connection
- cable length 1.8 m

Weight: 40 g

#### ▶ 9-344-1

#### ESD grounding cable 1 x 10 mm with eyelet 4 mm

- for connection between table and floor coverings and for connection to an earth potential
- with 1 megaohm safety resistance
- 1 flat press button 10 mm for mats or floor connection
- 1 eyelet for M5 thread at the socket ground
- cable length 1.8 m

Weight: 40 g

#### **▶** SETS





















9-205-ESD-SET1

9-215-ESD-SET1

9-251-ESD-SET1

9-261-ESD-SET1

## **CONTACT BRACELET, CABLE AND SETS**



Wrist grounding, as a safe method to derive electrostatic charge from people, consists of an adjustable wrist strap with woven silver-plated synthetic fibers (close skin contact necessary) and a spiral cable which connects the wristband with the earthing point via press buttons, electrically dissipative.

The coiled cable has a safety resistance of 1 MOhm on each connection side and is approved for workplaces with a rated voltage up to 250 VAC. To ensure adequate insulation, the bracelet may only be stored in a dry place.

#### ▶ 9-341-1 (yellow) 9-342-1(blue)

#### **ESD** contact bracelet

- $\, \mathsf{EPA} \, \mathsf{suitable}. \, \mathsf{For} \, \mathsf{working} \, \mathsf{in} \, \mathsf{electrostatically} \, \mathsf{protected} \, \mathsf{areas} \, (\mathsf{ESD} \, \mathsf{workplace} \, / \, \mathsf{ESD} \, \mathsf{protection} \, \mathsf{zone})$
- meets the safety requirements for wrist grounding standard
- fit for 3-4 mm press button
- adjustable, anti-allergic, washable
- belt length 220 mm

Weight: 9 g





#### ▶ 9-341-2 (yellow) 9-342-2 (blue)

#### ESD highly elastic spiral cord for bracelet 2.4 m

- EPA suitable. For working in electrostatically protected areas
- 2 x 1 megaohm safety resistance
- 3 mm press button for wrist strap
- 10 mm press button for ground connection
- length 2.4 m

Weight: 25 g





#### 9-342 / 9-341

#### ESD contact bracelet with spiral cord and crocodile clip

- EPA suitable. For working in electrostatically protected areas (ESD workplace / ESD protection zone)
- bracelet adjustable, anti-allergic, washable
- belt length 220 mm
- press buttons 3-4 mm for wrist strap and 10 mm for ground contact connection
- highly elastic 2.4 m long spiral cable
- -2 x 1 megohm safety resistor
- insulated crocodile clip for grounding with clamp connection

Weight: 60 g



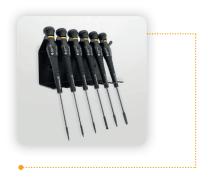
#### Further sets:

ArtNo. set	9-341	9-342	9-343	9-343-A	9-350
bracelet	9-341-1 (yellow)	9-342-1 (blue)	-		9-342-1 (blue)
cable	9-341-2	9-342-2	9-343-1		9-342-2
crocodile clip		9-353	9-353	9-343-1	9-343-1
grounding plug				9-359-2	
crocodile clip		9-353	9-353		9-353



## **TOOL HOLDER STOREY**





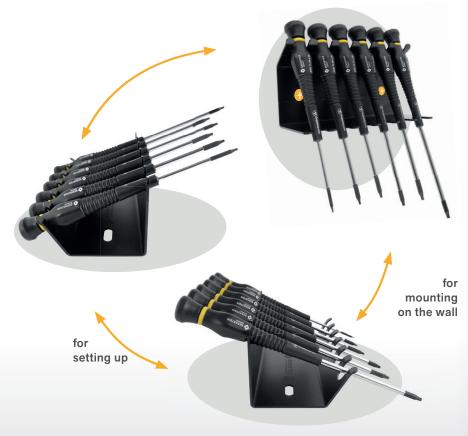
## For more organisation at your workstation

The STOREY tool holder was developed as practical storage for hand tools so that your tools are always within reach. Whether as a table stand or wall holder.

Holder made of 1.5 mm sheet steel ESD powder coated RAL9005 dissipative 10<sup>5</sup>- 10<sup>9</sup> Ohm 100% Made in Germany



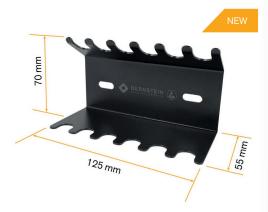
Approx. 125 x 55 x 70 mm (dimensions for guidance)



### **4-600-0**

#### ESD Werkzeughalter STOREY (ohne Werkzeuge)

Our BERNSTEIN STOREY as a conductive steel tool holder is often used in the EPA area, where uncontrolled discharge of tools or objects must be avoided. (EPA suitable for work in electrostatically protected areas: ESD workstation / ESD protection zone / EPA electrostatically protected area).

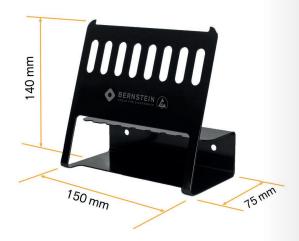


#### **5-090-0**

#### ESD tool holder VARIO tronics (without tools)

For more tidiness in the workplace!

The practical VARIO tronics tool holder is made of sturdy 1.5 mm sheet steel and has a high-quality, dissipative black powder coating. In addition to pliers and tweezers, it can also store our handy screwdrivers or round objects with a maximum diameter of 9 mm. The recess in the lower area allows the blades or tips of the tools to be quickly identified and selected. The locking aid at the rear edge additionally helps to hold each tool in position. Small noses on the upper edge of the suspension rail prevent pliers or tweezers from slipping down. The tool holder can be placed on a surface as well as hung. Two holes on the rear side allow easy mounting to the wall. Weight: 400 g



## **TOOL HOLDER VARIO**



140 mm wide rail for hanging pliers and tweezers



8 slotted holes for inserting tools up to a diameter of 9 mm



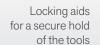




Approx. 150 x 140 x 75 mm (dimensions for guidance)



on request with logo print



Screw holes (Ø 6mm) for mounting on the wall



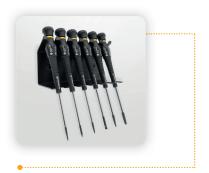
ArtNo.	Content
5-090-0	VARIOtronics, dissipative (10 <sup>6</sup> - 10 <sup>9</sup> Ohm)
5-090-1	VARIOcrafts, dark grey metallic



Under the search term **VARIO** you will find all information about the tool holder and other sets on our website.

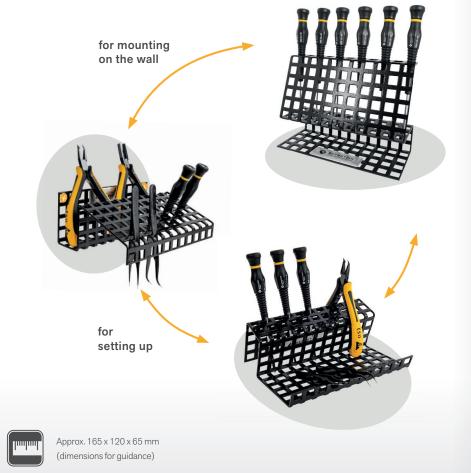
## **TOOL HOLDER SQUARE**

NEW



The versatile tool stand SQUARE is made of 2.0 mm extremely sturdy sheet steel and has a high-quality ESD dissipative black powder coating. Besides pliers, tweezers and screwdrivers, many other hand tools can be stored.

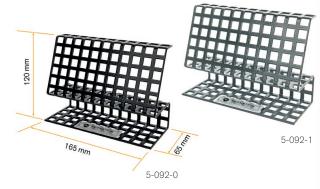
Based on the square recess, blades or the tips of tools can be quickly identified and selected anywhere. As a locking aid, long tools can be pushed through to the bottom and held in place. The well thought-out bends of the holder prevent pliers or tweezers from slipping down.



### ▶ ESD tool holder SQUARE (without tools)

The tool holder can be set up as well as attached. Due to the many holes it is possible to choose his personally useful wall mounting. Try it out! With this - different holder - is certainly a lot of things possible.

ArtNo.	Content
5-092-0	VARIOtronics, conductive (10 <sup>6</sup> - 10 <sup>9</sup> Ohm)
5-092-1	VARIOcrafts, grev



#### ▶ 5-170-0



#### **ESD** tweezers holder TWEEZ

made of steel, ESD powder coated RAL7035, conductive  $10^4$  -  $10^5$  Ohm storage of up to 11 tweezers or other suitable tools clearly arranged and ready to hand at any time for standing or hanging, weight:  $170\,\mathrm{g}$ 



approx. 125 x 40 x 50 mm (dimensions for guidance)



#### ▶ 5-180-0-ST



#### ESD tool holder ZEE

made of steel, ESD powder coated RAL7035, conductive 10 $^4$  -  $10^5\, Ohm$  tools clearly arranged and ready to hand at any time for standing or hanging, weight: 216 g



approx.  $125 \times 40 \times 50 \text{ mm}$  (dimensions for orientation)



## **ESD HELPING TOOLS AND ORGANIZER**

EPA suitable. For working in electrostatically protected areas (ESD workplace / ESD protection zone).



#### ▶ ESD boxes for SMD components (PU10)

storage box for microprocessors, boards, chips, etc. conductive  $10^2$  to  $10^5$  ohm, to stick together lid with spring mechanism, known as "mouse toilet"

ArtNo. set	9-321-VE10	9-322-VE10	9323-VE10
Inner dimension	16 x 12 x 15 mm	37 x 12 x 15 mm	41 x 37 x 15 mm
Weight	5 g	10 g	15 g



### ▶ 9-324

#### ESD boxes for SMD components (10 pcs)

Storage box for microprocessors, circuit boards, chips, etc. conductive  $10^2$  to  $10^5$  ohm, to stick together 5 pieces inside measures  $16 \times 12 \times 15$  mm 5 pieces inside measures  $37 \times 12 \times 15$  mm



#### ▶ 9-314

#### ESD chip container

Storage box for microprocessors, circuit boards, chips, etc. conductive  $10^2$  to  $10^5$  ohm, with conductive foam inlay Innenmaße  $130 \times 18 \times 14$  mm, Gewicht: 15 g



## **BALL JOINT HOLDER SINGLE PARTS VARIO**



All these accessories can be connected to the holders (base parts) via the M12 screw connection.

#### Vice Head

Jaw width 50 mm, clamping pressure 1470 N clamping width 70 mm, clamping depth 38 mm Glued-in ESD conductive plastic jaws corrugated (waffle iron pattern) Dimensions for orientation  $180 \times 70 \times 50$  mm, weight 560 g

- ▶ 9-252 Colour dark gray metallic, surface structure
- ▶ 9-252 ESD Colour black ESD dissipative 107 108 Ohm, EPA suitable



#### ▶ 9-253-ESD PCB / Circuit Board Holder

two black ESD holders with suspension for sensitive circuit boards adjustable span up to 270 mm, with internal groove for a tight fit of the PCB Height of the support rods 70 mm, steel parts nickel-plated Dimensions for orientation 310 x 120 x 30 mm, weight 280 g

stable assembly frame rotatable, PCB holder for SMD / THT fits on quick turn device 9-257 or angle adapter 9-255 mostly used with 9-256 cover plate



#### ▶ 9-256 Cover plate ESD soft foam for THT equipment

is pushed from the right or left onto 9-253, so that the components to be soldered are held in the right place by the foam, so that after the circuit board holder has been turned all parts and components remain in their place Soft foam size  $240 \times 130$  mm, thickness 20 mm ESD plastic, ESD foam, chrome-plated steel parts Overall dimensions for orientation  $280 \times 130 \times 20$  mm, weight 260 g



#### ▶ 9-257-ESD Quick turn device for 9-253

enables the circuit board holder with the circuit board to be rotated by 180  $^{\circ}$  at lightning speed without loosening an adjusting screw, stops automatically due to the rotation limiter, Color black ESD dissipative 107 - 108 Ohm, EPA suitable Orientation dimensions approx. 280 x 130 x 20 mm, weight 270 g



#### ▶ 9-255-ESD Angle adapter turning circle extension

to expand the turning circle of the joint ball in the ball joint holder with easy-to-use adjusting screw for quick tightening and loosening Color black ESD dissipative 107 - 108 Ohm, EPA suitable Orientation dimensions approx. 100 x 55 mm, weight 95 g



#### Universal machining plate to screw on

3 elongated holes 62 x 6 mm for fastening individual devices Slots for common standard screws up to M12 for setting up stops, tuners, line transformers, prototypes and much more is also often used in woodworking Orientation dimensions Ø100 x 14 mm, weight 95 g

- ▶ 9-254 Colour dark gray metallic, surface structure
- 9-254-ESD Colour black ESD dissipative 107 108 Ohm, EPA suitable



9-254

9-254-ESD

## **ESD BALL JOINT HOLDER**

Included in delivery: schnorr washer, lock nut and lock nut for the thread.





These ball joint holders have a dissipative surface with a leakage resistance between  $10^7$  -  $10^8$  Ohm Ohm. EPA suitable (for electrostatically protected areas, ESD workplace, ESD protection zone) for working on and with sensitive parts and components. The base sections can be connected to the grounding point on the back with a 10 mm push button.





Art-No.	9-251-ESD-SET1	9-261-ESD-SET1
Ball Joint Holder	9-251-ESD	9-261-ESD
9-343-1 ESD grounding cable 1 MOhm, 1.8 m	✓	<b>✓</b>
9-359-2 ESD Earthing plug 2 x 1 MOhm, screw connection M5 for 4 mm eyelet	✓	<b>✓</b>

## **ESD BALL JOINT HOLDER VARIO**

With the SPANNFIX VARIO, PCBs / circuit boards up to a length of 270 mm can be clamped. Thanks to the infinitely adjustable ball, the PCB can be positioned and held securely in all directions. Quick turning of the PCBs is possible thanks to the adapter. Very useful as a third hand when soldering or assembling, sensible clamping and holding device with quick release mechanism.

Thanks to the practical cover plate\* all inserted components are held in place when turning the PCB and can be soldered conveniently from the other side.







Art-No.	9-240-ESD	9-270-ESD	9-250-ESD
Ball Joint Holder	9-251-ESD	9-251-ESD	9-251-ESD
9-343-1 ESD grounding cable 1 MOhm, 1.8 m	<b>✓</b>	✓	✓
9-359-2 ESD Earthing plug 2 x 1 MOhm	-	-	-
9-253-ESD PCB Holder	<b>✓</b>	<b>✓</b>	<b>✓</b>
9-255-ESD Angular Adapter	<b>✓</b>	-	-
9-257-ESD Rapid turning device	-	<b>✓</b>	<b>✓</b>
9-256-ESD Cover Plate*	-	<b>✓</b>	-
9-252-ESD Vice head - jaws 50 mm	-	-	<b>✓</b>
9-254-ESD Universal screw-on plate	-	-	<b>✓</b>

## INDUSTRIELLE LED-MAGNIFYING LAMPS

Optimum illumination according to the most modern, economical standard. The closed construction makes it a ideal instrument for mechanical, electronic, or other precision applications as well as for the printed circuit board, dental and jewellery industries.

Therefore, the highest value is placed on the light quality of the magnifier luminaires. They have powerful light sources with excellent luminous efficacy.

The quality and precise positioning of the light sources in relation to the lens allows almost shadow-free magnification and excellent colour rendering. The crown-glass-lens has a lower refractive index than magnifier luminaires with plastic lenses. It reduces the loss of light transmission through the lens, resulting in less image distortion.

The three-dimensional function is particularly useful for inspections and rework on printed circuit boards and similar delicate objects.

The loupes are specially designed to maximize horizontal and vertical movements. They are characterized by a considerable horizontal action radius and always maintain the correct position without drifting off. Exact positioning is possible thanks to the flexibility of the self-balancing arm and the joint between the lamp head and the arm.

The following types are available:			NEW	NEW	NEW
CHARACTERISTICS	9-161	9-101	9-104	9-115	9-116
glass lens	5 dioptres (2.25x magnification)	3 dioptres (1.75x magnification)	3,55 dioptres (1,9 x magnification)	6,0 dioptres (2,5x magnification)	6,0 dioptres (2,5x magnification)
LED module	2 x 6 W	1 x 10 W	12 W	approx. 5 W	approx. 5 W
3 step dimmer	0-50-100%	0-50-100%	0-40- 60-100 %	-	-
focal length	297 mm, 4600 lux	330 mm, 1500 lux	200mm, 6000 lux	150 mm , 6000 lux	150 mm , 6000 lux
colour temperature (CCT)	4000 K	4000 K	6500 K	6200 K	6200 K
colour rendering index (CRI)	Ra 80	Ra 80	Ra >85	Ra >85	Ra >85
crown glass	rectangular 171 x 114 mm	round Ø 127 mm	round Ø 132 mm	round Ø 76 mm	round Ø 76 mm
power	13 W	11 W	15 W	4,6 W	4,6 W
voltage	230 V / 50 Hz	230 V / 50 Hz	230 V	24 V	24 V
shutoff	automatically after 4 or 9 hours	automatically after 4 or 9 hours	-	-	-
arm length	1050 mm	1000 mm	900 mm	350 mm	565 mm
colour	black	white	white	black-grey	black-grey
weight	4600 g	2000 g	1300 g	680 g	780g
expandable	Secondary attachment le	enses (STAYS) with 4, 6 or	Extendable with add-on	-	-
	10 diopters can be attac	ned to the crown glass lens.	lenses by 4, 6 and 10		
	(STAYS: Self-Traction Ac	cessory Yield System)	diopters respectively		

#### ▶ 9-161

#### ESD LED magnifier light WAVE 5 dioptres

Flexible, self-balancing steel light arm, with aluminium head and table clamp (AH clamp). Efficient, dimmable, shadow-free 3D illumination, selectable LED left/right illumination. High-quality crown glass lens for maximum clarity, precision and visual comfort.

Industrial magnifier luminaires with powerful light sources and optimum illumination according to the latest economic standards. The quality and precise positioning of the light sources in relation to the lens enable almost shadow-free magnification. The crown glass lens has a lower refractive index than magnifier luminaires with plastic lenses, and reduces light transmission loss, resulting in less image distortion. Exact positioning is possible thanks to the flexibility of the self-balancing arm and the joint between the luminaire head and the arm. 5 year warranty, supplied with dust cover and EU plug

Magnification: 5.0 dpt

Lens dimensions: 171 x114 mm



#### 9-101

#### LED magnifying lamp LFM 3.0 diopters

Round magnifying lamp in modern lightweight construction with small dimensions, as metal construction with LED (light emitting diode) light sources and a flexible spring arm. The glass lens with a diameter of 127 mm is located in the middle of an LED light ring. This enables perfect illumination of objects for shadow-free viewing.

Applications: Excellent for precision work, including electronic rework, deburring, sample preparation, preparation, assembly and manipulation, and wherever the smallest possible magnifying lamp is required.

Magnification: 3.0 dpt Lens diameter: 127 mm



#### ▶ 9-104

#### LED magnifying lamp LFM 3.0 diopters

The magnifying lamp is equipped with the aspherical PXM® light lens with era-tec® hard coating. The fold-down lens cover serves as dust protection. 6 joints ensure optimal alignment of the magnifier head. It features an easy-to-use panel with separate buttons. The ring light, made of 84 long-life, high-power LEDs, ensures cast-shadow-free, uniformly bright illumination of the work surface.

Magnification: 3.55 dpt Lens diameter: 132 mm







#### Flexible LED magnifier light 6.0 diopter





The low weight and compact dimensions as well as a high flexibility of the magnifier lamp makes it multifunctional applicable. The flexible LED magnifier lamp features segment switching and stı  $P\rangle$ SV CC

egment illumin structures. The PXM® light len swivel range of	nation for better inspection of different surface magnifying lamp is equipped with the aspherical with the ra-tec® hard coating. It has an optimal the magnifier head due to the gooseneck stand in the biaxial lens suspension. Lens Ø 76 mm		
ırtNo.	Content	Tripod length	
-115	Flexible LED magnifier Light 6.0 diopter	350 mm	
-110	r lexible LLD magniner Light 6.0 diopter	330 111111	
-116	Flexible LED magnifier Light 6.0 diopter	565 mm	

#### ▶ 9-140





Weight: 230 g

#### PCB Inspection hand magnifier

The inspection hand magnifier is equipped with a 4.3" display, a touch screen function for intuitive operation and an HD camera for highest sharpness and best contrast even at a magnification of 4 to 15 times. The PCB hand magnifier has the ability to save images directly to the inserted SD card. Data transfer can be done via USB Type-C connection.

Battery life: 2.5-3 hours, charging time about 2 hours. Mains voltage of the charger: 110V - 240V, 50 - 60Hz



#### PCB inspection device







The PCB inspection device has a high-resolution camera with optical digital zoom (high magnification range from 1.3x to 45x). The reflection-free LCD-TFT screen in 15.6" format with the razor-sharp, true-color image in full HD auflsolution offers the best working comfort. The integrated autofocus can be activated and deactivated at any time. The powerful LED illumination enables optimal work in a field of view of 265 mm. The inspection device is equipped with a user-friendly menu with customizable setting options and a swiveling camera. Data transfer can be performed via USB Type-C connection.

ArtNo.	Content
9-145	PCB inspection device
9-146	PCB inspection device with XY table



## STEREO MICROSCOPES

Our microscopes are particularly suitable for the reliable inspection of material and assembly details as well as for the finest work in SMD technology.

#### 9-155

#### stereo microscope with a stable

Stereo microscope with a stable metal tripod for incident light illumination. The field of view at a magnification of  $10\,x$  is 19 mm in diameter. The LED ring illumination has a bright, shadow-free incident light with a luminous colour of 5,800 K. The brightness can be steplessly adjusted between 0 and 15,000 lux.

#### CHARACTERISTICS

table stand	200 x 150 mm
magnification	10 x / 20 x expandable by attachable lenses up to 40 x
eyepieces wide field	10 x ocular tube left with diopter adjustment of + - 5 dpt, eyepiece cup
stereo head 45°	oblique view, 360° rotatable adjustable eye distance of 54 - 74 mm
Weight	5300 g



#### ▶ 9-158

#### stereo microscope with stable hinge arm 850 mm length

Stereo microscope with stable metal tripod for incident light illumination. The field of view at a magnification of  $10 \, x$  is  $19 \, mm$  in diameter. The LED ring illumination has a bright, shadow-free incident light with a light colour of  $5800 \, K$ . The light is illuminated by a LED ring. The brightness is continuously adjustable between  $0 \, and \, 15000 \, lux$ .

#### CHARACTERISTICS

equipment with stable table clamp and screw-on table base, Joint arm with 3 locking screws			
magnification	ification 10 x / 20 x expandable by attachable lenses up to 40 x		
eyepieces wide field 10 x ocular tube left with diopter adjustment of + - 5 dpt, eyepiece cup			
stereo head 45°	oblique view, 360° rotatable adjustable eye distance of 54 - 74 mm		
Weight	5300 g		

#### 9-158-1

#### Stereo microscope conversion lens 0,5

Lens with a factor of 0.5 increases the working distance from 83 mm to 100 mm.

#### ▶ 9-158-2

#### Magnifying optics for stereo microscopes

By screwing on the lens, the magnification changes from 10x/20x to 20x/40x. This reduces the working distance to 36 mm (working distance originally approx. 83 mm)



BERNSTEIN 2-162

## **CLEANING TOOLS**

Glass-fibre contact cleaner is a practical helper for users in many areas. They are perfect for cleaning, polishing or sanding the smallest surfaces. These are used in fine work for model building, for example, but the glass-fibre contact cleaner is also ideal for cleaning soldering joints and welds.

Brass wire brushes are practical helpers for cleaning, grinding, scratching and deburring. In particular, dirty threads in inaccessible places can be cleaned and derusted with the help of brass wire erasers.

We recommend to try the glass fiber eraser in an invisible area. The eraser consists of a writing sleeve which is, depending on the size, a 2 or 4 mm thick glass fiber mine. The integrated turning or printing mechanism allows infinitely variable length variation of the glass fiber lead. If a mine is used up, it is simply exchanged for a replacement mine.

#### ▶ 2-162

#### Glass fibre contact cleaner brush Ø 4 mm (plastic body)

in pen form with twist mechanism, for cleaning soldering or welding spots body completely made of synthetic, bristles made of glass fiber, brush Ø 4 mm length 120 mm, weight 10 g, (Replacement bristles Art-No. 2-167-VE10)

#### ▶ 2-163

#### Brass contact cleaner brush Ø 4mm (plastic body with metal tip)

with twist mechanism, for cleaning, polishing, grinding, for rust removal, scratching and deburring synthetic body, with steel tip, bristles made of brass, brush Ø 4 mm length 120 mm, weight 10 g, (Replacement bristles Art-No. 2-164-VE24)

#### ▶ 2-166

#### Glass fibre contact cleaner brush Ø 4 mm (plastic body with metal tip)

in pen form with twist mechanism, for cleaning soldering or welding spots for rust removal, polishing and grinding of smallest parts, for corrections or etchings synthetic body with metal tip, bristles made of glass fiber, brush  $\emptyset$  4 mm length 120 mm, weight 10 g, (Replacement bristles Art-No. 2-167-VE10)

### 2-168

#### Glass fibre contact cleaner brush Ø 2 mm (plastic body with metal tip)

with clip, in pen form with press mechanism, for cleaning soldering or welding spots for rust removal, polishing and grinding of smallest parts, for corrections or etchings body plastic with metal tip, bristles made of glass fiber, brush  $\emptyset$  4 mm length 140 mm, weight 12 g, (Replacement bristles Art-No. 2-169-VE12)



Fiber Optic ONE-CLICK CLEANER designed to specially work well with the LC, MU connectors. This instrument cleans the ferrule end faces removing dust, oil, and other debris without nicking or scratching the end face. Cleaning micro fibers are densely stranded and debris free extendable tip reaches recessed connectors. When pressed, the tip placed on the connector rotates 180 degrees and performs a cleaning movement with an acoustic click. Made from anti static resin, Disposable with 800+ cleanings per unit, detailed application description enclosed. Applications for Fiber network panels and assemblies, Outdoor FTTX applications, Cable assembly production facility, Testing laboratories, Server, switches, routers and OADMS with LC/MU or SC/FC/ST interface. Length 180 mm, Weight 21 g

#### ▶ 2-171

#### Fiber optic pen type cleaner for SC/FC/ST adapter connector

Cleans SC, FC and ST connectors Ø 2.5 mm connections (APC and UPC) mounted on the adapter. Dust cap is included.



#### ▶ 2-172

### Fiber optic pen type cleaner for MU/LC adapter connector

Cleans adapter mounted MU, LC connector Ø 1.25 mm. Dust cap is included.



#### ▶ 7-421

#### ESD Brush bristles Ø 6 mm, length 150 mm

EPA suitable. For working in electrostatically protected areas (ESD workplace / ESD protection zone).

#### 7-422

#### ESD Brush bristles width 20 mm, length 147 mm

EPA suitable. For working in electrostatically protected areas (ESD workplace / ESD protection zone).

#### ▶ 2302

#### ESD Tool set OPERATOR KIT 5 pcs.

EPA suitable for electrostatically protected areas (ESD workplace / ESD protection zone). Dissipative tool set in lockable imitation leather cases for handling automatic placement machines during operation. The compact and robust bag made of dissipative imitation leather fits well into any work coat bag. Injuries caused by pointed and loosely inserted tools can thus be prevented. Measures  $135 \times 150 \times 25$  mm, weight 190 g

#### Content

steel dissipative

#### ▶ 2-126

#### ESD Desoldering lever with slot 0.7 x 2.0 mm

to replace or lifting stuck components for desoldering, blade-Ø 3.5 mm, blade width 3.58 mm blade depth 2.0 mm, slot width 0.7 mm, blade quality steel, mat chrome-plated ESD handle with rotating cap (dissipative 10^5 to 10^7 Ohm) length 147 mm, weight 17 g

#### ▶ 2-127

#### ESD Tin knife blade pointed sharp steel-blade

 $7\,$  mm wide blade with, bevelled very sharp edge, Blade protrudes 41 mm from the handle largely insulated, dissipative ESD handle with rotating cap (dissipative 10^5 to 10^7 Ohm) for interrupting conductive tracks, length 140 mm, weight 16 g

#### ▶ 2-101

#### ESD Tin knife blade pointed sharp ceramic-blade

 $3\,mm$  wide blade with, bevelled very sharp edge, Blade protrudes  $20\,mm$  from the handle ESD handle with rotating cap (dissipative 10^5 to 10^7 Ohm), length 104 mm, weight 9 g

#### 2-128

#### ESD Pewter scraper mini chisel sharp chisel form

5.25 mm wide blade with a very sharp edge, blade protrudes 40 mm from the handle largely insulated, dissipative ESD handle with rotating cap (dissipative 10^5 to 10^7 Ohm) for scraping off solder residues, excess solder, solder bridges, length 140 mm, weight 16 g













2302













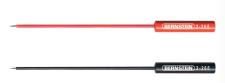




## **TESTING TOOLS**

The test probes manufactured by BERNSTEIN are particularly thin, pointed and flexible. The fully insulated and flexible design of the test prods prevents short circuits and damage during testing and measuring, even when contacts are arranged one after another. **Measurement category CAT I, rated voltage 30 V / AC and 60 V / DC** 

ArtNo.	Description	Packaging unit	Total length mm	Weight g
2-265-1	Test prod red, blade 1 mm Connection for 4 mm socket	single	155	9
2-265-2	Test prod black, blade 1 mm Connection for 4 mm socket	single	155	9
2-265-VE	Test probe red + black (pair)	pair	155	18



## **MAGNIFICATION TOOLS**

#### ▶ 1-909

#### **Engineer mirror**

magnifying Ø 23 mm with extension, plastic handle length 145 to 260 mm, weight 9 g



#### Magnifying mirror

concave Ø 21 mm 180 mm long, plastic handle Total length 180 mm, weight 8 g



#### Hand 3x magnifier with LED light

Magnifier can be turned out, plastic housing, bluish light, supplied with battery, Length closed 112 mm, total length opened 172 mm, weight 18 g



### LED Flashlight high power light

illumination range up to 50 meters, 100% waterproof and unbreakable black synthetic, with clip for belt attachment, delivery with battery length 140 mm, weight 40 g



#### ESD Hand magnifier 5x magnification LED light

ESD safe, suitable for the EPA area, material (plastic part) conductive PP black surface resistance 10<sup>5</sup> to 10<sup>8</sup> Ohm, magnifying glass diameter 62 mm LED illumination: 5x LED white, 1x LED UV battery operation 2x AAA (delivery without battery), length 200 mm, weight 25 g

Risk factor loupes and lighting! At the ESD workstation, sensitive components must not be exposed to an electrostatic field of more than 100 V / cm. There is a high risk due to the use of highly rechargeable materials such as glass or plastic. Above all, loupes and lights are dangerous because they are often used very close to the product. An electrostatic discharge can also occur via the air, it is not always a direct contact necessary. For this reason, only use ESD-safe lighting like this item, in accordance with DIN EN 61340-5-1.











## **OPENING AND LIFTING TOOLS**

Opening tools for opening hard-to-reach electronic devices such as smartphones, tablets, notebooks, and many more.

#### ▶ 2-113

#### ESD Lifting tool, Opening tool

Very stable, break-proof glass fiber reinforced polyamide, typical leakage resistance approx.  $10^9$  Ohm for opening sensitive housings, 3 different material thicknesses allow lever attachment of different gap dimensions, including flat metal insert for scratch-resistant areas length 180 mm, weight 22 g

#### ▶ 2-123

#### ESD crowbar SPUDGER metal opener flat

For levering off micro plug connections in electronic devices. EPA suitable. For working in electrostatically protected areas (ESD workplace / ESD protection zone). length 180 mm, weight 19 g

#### ▶ 2-124

#### Opening tool BERNSTEIN metal opener flat

 $0.2\,\mathrm{mm}$  spring plate deburred, very narrow filigree opening tool for small slots different radii offer different lever approaches, flexible through the spring plate without breaking off, often used for the first opening, then to prise open further with a larger opening tool length  $120\,\mathrm{mm}$ , weight  $12\,\mathrm{g}$ 

## ▶ 2-129

### Opening tools plastic 10 pcs

Insulating plastic consumables, set consisting of:

2-129-1 opening tool triangle orange (6 pcs)

2-129-2 opening tool darts orange (3 pcs)

2-129-3 opening tool pen pointed orange

#### ▶ 2-111-VE3

#### LCD Opener suction cup with ring (PU3)

 $\varnothing$  40 mm suction cup holder transparent, strong holding suction cup screwed suction cup and handle ring, suction cup with M4 thread ideal for holding / opening LCD displays 6 mm thread length, stainless steel (V2A) rustproof suction cup material soft PVC, hard plastic holder / nickel-plated ring Dimensions  $40\times45$  mm, weight 50 g

### MAKESHIFT TOOLS

#### ▶ 2-119

#### Magnetic mat + waterproof pen + eraser sponge

rewritable pad for the repair of small electronic devices, such as smartphones, hearing aids, etc. Dimensions  $250 \times 200$  mm, weight 200 g, Set consisting of:

2-119-10 Work mat magnetic 250 x 200 mm

2-119-11 Wiping sponge for magnetic mat

2-119 ST STAEDTLER black foil pen 0.6 mm

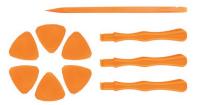




















## **MAKESHIFT TOOLS**

Claw grippers are used when it is not necessary to recover magnetic small parts from hard-to-reach areas. As well as the magnetic lifter, the claw grab has a flexible, well-aligned steel shaft and a robust and smooth claw mechanism with hardened claws, which will withstand long-term professional demands and fine adjustment. It is available in different sizes, whether individually or in an individual set.

#### ▶ 2-155

#### Claw-type gripper with 3 hardened wire claws

opening up to max. 12 mm, comfortable use and  $\,$  precise gripping handle ergonomically shaped, length 165 mm, weight 50 g

#### ▶ 2-155-13

#### ESD claw-type gripper with 3 hardened wire claws

same as 2-155 with dissipative ESD coating 10^6 and 10^9 ohm

#### ▶ 2-157

#### Flexible claw-type gripper with 4 spring claws

nickel plated, long version length 600 mm, weight 75 g

#### ▶ 7-521

#### Scriber 200 mm

for marking, scribing, scoring, engraving, needle  $\emptyset$  2.5 mm one side bent 90°, point angle is 15° aluminum handle  $\emptyset$  6 mm, finely milled for optimum grip material aluminum/tool steel, needles hardened and burnished length 200 mm, weight 26 g

#### ▶ 2-131

#### Spring puller, spring hook 205 mm

for hooking in and out of tension springs material high-quality steel, nickel plated and insulated length 205 mm, weight 10 g

#### ▶ 2-132

#### Spring puller, spring hook 175 mm

material high-quality steel, nickel plated and insulated length 175 mm, weight 8  $\rm g$ 

#### ▶ 2-133

#### Spring puller, spring hook with ring 195 mm

material high-quality steel, nickel plated and insulated length 195 mm, weight 12  $\rm g$ 

#### ▶ 2-130

#### Set of spring pullers 6 pcs

2-131, 2-132, 2-133 in a plastic pocket

Material quality steel, nickel-plated, not insulated in the middle length 195, 175, 205 mm weight: 39 g















#### ▶ 2-620

#### **PLCC-extractor**

For work on circuit boards (PCB) for easy excavation of parts and components enables removal of integrated circuits, safe removal without the risk of damaging the pins material: plastic and metal compound, length 100 mm, weight 21 g

#### 2-161

#### Scriber, magnetic lifter with telescopic slide-out

Slim, elegant design, max.lifting force 0.025 kg, needle Ø 7 mm, extra hardened for small, light metallic objects in hard-to-reach places pen shape with clip for carrying in the breast pocket, telescopic rod max. 655 mm Total length 145 mm, weight 34 g

#### ▶ 2-800

#### Miniature tap and die set 30 pcs (M1.0 - M2.5 mm)

 $18 taps, each with a pre-cutter and a finish cutter \\ each 2 x hand taps (HGB) each M 1.0 - M 1.1 - M 1.2 - M 1.4 - M 1.6 - M 1.8 - M 2.0 - M 2.2 - 2.5 \\ each 1 x dies M 1.0 - M 1.1 - M 1.2 - M 1.4 - M 1.6 - M 1.8 - M 2.0 - M 2.2 - M 2.5 \\ \\$ 

1 x die holder

2 x tap wrenches

2 matching reducing rings

high speed quality steel (HSS) polished

in a practical storage box, measures  $150 \times 85 \times 15$  mm, weight 199 g







## **DESOLDERING SUCTION PUMPS**

#### ▶ 8-390

### desoldering suction pump PRAKTIK Ø 20 mm RD-7376

handy device in all-metal housing high suction power due to 2-fold sealing of the piston length 200 mm, weight 71g



#### ▶ 8-238

#### SMD vacuum pipette Vampir

for simple, safe and precise handling of SMD components, angled suction nozzle and 3 suction cups 4, 6 and 9 mm (conductive) length 150 mm, weight 60 g



## **GAS SOLDERING IRON**

#### ▶ 8-376

#### Gas soldering iron, works with butane lighter gas

operating time 45 minutes, Ignition with piezo-electronic system soldering tip width 2 mm , tip temperature up to soldering:  $580^{\circ}$ C/1075°F blow torch:  $1300^{\circ}$ C/2372°F, hot air tip  $625^{\circ}$ C/1157°F, hot knife  $580^{\circ}$ C/1075°F 75 wattage, TUV approval, length 170 mm, weight 94 g

Perfect for all mobile applications. The soldering iron is ignited by a piezo-electronic system. The on/off switch is marked with 1-0, the ignition switch is marked with a lightning. Soldering, hot air or hot knife by the placement of different soldering tips possible. Please note the enclosed instructions for use.



### **SCISSORS**

#### ▶ 5-161

#### Clamping scissors with teething jaws

for holding and clamping, no cutting function, serrated on both sides jaws length  $25\,$ mm, material high-quality steel, Surface chrome plated stainless length  $130\,$ mm, weight  $80\,$ g

#### ▶ 5-301

#### Scissors with teething

micro serrated one blade, for round, flat and shrouded wires, cutting length 15 mm material high-quality steel, Surface chrome plated stainless length 110 mm, weight  $27\,\mathrm{g}$ 

#### ▶ 5-301-13

#### ESD scissors with teething, dissipative

like 5-301 with dissipative ESD coating 106 to 109

#### ▶ 5-302

#### Electrician scissors with teeth and stripping function

for cutting and stripping for wire, one blade fine serrated, both outer sides toothed for round, flat and shrouded wires, cutting length 45 mm very stable and robust scissor, material high-quality steel, Surface chrome plated length 130 mm, weight 67 g

#### ▶ 5-305

#### Combination scissors, slicer

with compression spring and lock in closed position, smooth precision cutting external edge toothed, one-side, cutting length 30 mm very stable scissor, material stainless steel, polished surface ergonomic plastic handles, length 145 mm, weight 58 g

#### ▶ 5-306

#### Scissors, black lacquered, polished head

No ESD coating, cutting length 30 mm, very robust scissor material high-quality steel, length 180 mm, weight 85 g

#### **5-308**

#### Scissors with fine teething

one-sided very fine serrated, precision cutting, sharp scissors very robust cutting length 45 mm, material high-quality steel, Surface chrome plated length 125 mm, weight 59 g

#### ▶ 5-308-13

#### ESD scissors with fine teething, dissipative

like 5-301 with dissipative ESD coating  $10^6$  to  $10^9$ 

#### ▶ 5-311

#### Kitchen scissorcs

smooth precision cutting, cutting length 70 mm very stable and robust scissor, material high-quality steel length 180 mm, weight 80 g



## **SCISSORCS AND KNIFES**

#### ▶ 5-310

#### Scissors with round tips

smooth precision cutting, cutting length 45 mm material high-quality steel, surface chrome plated length 130 mm, weight 55 g

#### ▶ 5-310-13

#### ESD scissors rounded, dissipative

like 5-301 with dissipative ESD coating 106 to 109

#### 5-352

#### ESD scissors with dissipative handle

smooth precision cutting, cutting length 80 mm, cutters stainless and acid resistant material stainless steel, handle dissipative between 106 to 108 ohm EPA suitable for working in electrostatically protected areas (ESD workplace / ESD protection zone) complies with DIN EN 61340-5-1, length 180 mm, weight 55 g

#### ▶ 5-353

#### Ceramic scissors with plastic handle

smooth precision cutting, for cutting kevlar and aramid fibers cutting length 75 mm, cutters stainless and acid resistant length 190 mm, weight 80 g

#### ▶ 5-515

#### Cutter knife

9 mm blade strips adjustable and breakable, backwards with a clip very stable and durable, material metal body, powder coated blades made of special stainless steel, length 140 mm, weight 10 g (spare parts blades Art-No. 5-516)

#### ▶ 5-517

#### Cutter knife

18 mm blade strips adjustable and breakable, very stable and durable body made from plastic ergonomically shaped, blades made of special stainless steel length 160 mm, weight 55 g (spare parts blades Art-No. 5-518)

#### ▶ 5-519

#### ESD cutter knife dissipative

18 mm blade strips adjustable and breakable, very stable and durable blades made of special stainless steel, body dissipative between 106 to 108 ohm EPA suitable for working in electrostatically protected areas (ESD workplace / ESD protection zone) complies with DIN EN 61340-5-1 length 140 mm, weight 39 g (spare parts blades Art-No. 5-518)

#### 2-102

#### Scalpel handle with 5 blades

Material quality steel, stainless steel blades, exchangeable handle 125 mm, exchangeable blades

ArtNo.	Content	
2-102-1	Scalpel handle	
2-102-2	Blade no. 10 (7 x 42 mm)	
2-102-3	Blade no. 10 A (8 x 42 mm)	

ArtNo.	Content
2-102-4	Blade no. 11 (5 x 42 mm)
2-102-5	Blade no. 12 (6 x 40 mm)
2-102-6	Blade no. 13 (7 x 42 mm)







5-515







## **FILES AND HAMMER**

#### ▶ 5-210

#### Needle files set 6 pcs

content: article listing see below, precision mechanic files in high-quality 24 strokes on 1 cm, File length 80 mm, Handle length 60 mm length 140 mm, weight 50 g, 100% Made in Germany

ArtNo.	Туре	Handle length	Total length	Weight in g
5-201	flat-blunt	100	140	7
5-202	flat-pointed	100	140	6
5-203	round	100	140	6
5-204	half round	100	140	6
5-205	triangular	100	140	6
5-206	square	100	140	6



#### ▶ 5-240

#### Warding files set 6 pcs

content: article listing see below, precision mechanic files in high-quality 22 strokes on 1 cm, File length 103 mm, Handle length 67 mm length 170 mm, , weight 120 g, 100% Made in Germany

ArtNo.	Туре	Handle length	Total length	Weight in g
5-231	flat-blunt	67	170	17
5-232	flat-pointed	67	170	14
5-233	round	67	170	13
5-234	half round	67	170	27
5-235	triangular	67	170	18
5-236	square	67	170	15



#### ▶ 5-261

### Contact file

 $22\,s$  trokes on 1 cm, precision mechanic files in high-quality for cleaning contacts and connections, with fine strokes, flat-blunt length 150 mm, weight 9 g, 100% Made in Germany

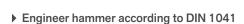
#### **▶** 7-616

#### PUK saw 150 mm

Saw blade for wood and metal, span 150 mm with adjustable wooden handle can be aligned with the frame length 245 mm, weight 140 g



content: 12 pcs, spare part / replacement, metal saw blade length 150 mm, weight  $3\,\mathrm{g}$ 



Drop forged, precision ground, tiller and track precision ground, varnished and rust-protected, with double curved ash handle

ArtNo.	Total length	Head weight in g	Total weight in g
7-114	280	200	260
7-116	300	300	435





## HAND AND MEASURING TOOLS

#### ▶ 7-405

#### Trowel 50 mm wide

with conical forged leaf and wooden handle blade width 50 mm, length 215 mm, weight 70 g

#### 7-410

#### Slicker trowel 16 mm wide

polished with round stalk, length 220 mm, weight 25 g

#### Folding rule

with angle measurement function, accuracy class 3 (III) red/black scale color on a white background, CE mark

ArtNr.	total lengh	material	Packing size	Weight in g
7-502	2 meter	beech wood	240 x 15 mm	120
7-503	1 meter	plastic	130 x 13 mm	60

#### 7-506

#### Roller tape measure 2 Meter

shockproof synthetic body, length 55 mm, weight 70 g

#### ▶ 7-508

#### Steel tape measure 30 cm

Cross section 13 x 0.5 x 300 mm stainless steel, Lines and numbers etched and dyed black, length 320 mm, weight 20 g

#### ▶ 7-515

#### Feeler gauge 21 blades (0.05 - 2.0 mm)

with conical blades, material: INOX stainless quality steel
T2 tolerances depending on size +/- 0.004 mm to +/- 0.008 mm (see web)
nickel-plated cover sheet with locking screw, length 100 mm, weight 190 g

### ▶ 7-535

#### Spirit level 225 mm

with horizontal, vertical and  $45^{\circ}$  level, material synthetic length 225 mm, weight 58 g

#### 7-511

#### Digital caliper with data output 150 mm (6 inch)

according to DIN862, bottom beak 40 mm, top 10 mm, Tolerance 0.02 mm 3-digit LCD display, large display, switchable metric / inch with depth gauge and locking screw, display body plastic, ruler made of steel delivery in protective plastic box and with battery, length 250 mm, weight 200 g

#### 7-516

#### Analogue caliper 150 mm

bottom beak 40 mm, top 10 mm, tolerance 0.05 mm, with fine roller and locking screw, with NONIUS scale, measure outside dimensions inside dimensions, depth dimensions, waterproof, oil resistant INOX stainless quality steel, in stable plastic box length 230 mm, weight 150 g





















## TERMS OF SALE AND DELIVERY

#### **GENERAL**

The nature and scope of delivery are specified in the order confirmation. The following delivery terms shall apply to all deliveries to be carried out by us. Purchasing conditions of the customer do not oblige us, even if we do not expressly contradict this. Verbal or by intercom agreements made require our written confirmation. Obvious mistakes in offers, order confirmations, etc. are expressly reserved and can be considered at any time. We are entitled to process any data relating to the business relationship or in connection with the same concerning buyers, whether the buyer itself or third parties, within the framework of the Federal Data Protection Act.

#### **OFFER**

Our offers are permissive, an order is deemed to be granted if confirmed by us in writing. PRICES, DELIVERY BASIS AND PACKAGING Unless otherwise agreed, the prices in Euros, ex works, are exclusive packaging. In the case of special packaging regulations of the customer, the additional costs involved are invoiced. Packaging is not accepted.

#### **DELIVERY**

The delivery takes place at the expense and risk of the buyer without regard to who bears the freight costs. We reserve the right to place orders in partial deliveries. For custom-made products, excess or short deliveries of up to 10% are permitted.

#### **DELIVERY TIME**

The delivery time begins upon receipt of all information required for the execution of the order. We endeavor to comply with the delivery time specified in the order confirmation. No claims of any kind can be asserted from a delayed delivery.

#### **COMPLAINTS**

Complaints can only be accepted within 8 days after receiving of the goods.

The shape and colour of the tool may differ from the item shown in the catalogue.

#### **GUARANTEE**

For all BERNSTEIN tools, which are unusable due to proven material or manufacturing defects, we deliver within one year after deliver a replacement. This free replacement service is excluded if the tools have become unusable due to natural wear or improper handling.

#### **DISCLAIMER**

We do not assume any guarantee for the suitability of our products for the intended purpose of the customer. For damages caused by unsuitable or improper use, commissioning by the customer or third parties, and for the natural wear and tear we assume no guarantee. Any claims for damages, irrespective of the legal basis, as well as, in particular, the liability by tort (product liability) are excluded to the extent permitted by law.

#### **PAYMENT**

Our invoices are payable within 10 days of the invoice date with 2% discount or in 30 days net, unless otherwise agreed in the order confirmation.

#### RESERVATION OF TITLE

We reserve the title to all goods delivered by us until the buyer has paid all claims arising from the business relationship. The buyer is entitled to resell the reserved goods in ordinary business transactions. In the case of resale, the buyer has to reserve the ownership of the sold goods on the same terms as his customer. The purchaser hereby assigns to us the purchase price claim against the buyer from the resale.

#### **FULFILLMENT AND JURISDICTION**

Place of performance and jurisdiction for delivery and payment is Remscheid. In any case, only German law shall apply, with the exclusion of any foreign law.

#### **ONLINE DISPUTE RESOLUTION**

The European Commission provides a platform for online dispute resolutions (ODR) which can be accessed at

#### https://ec.europa.eu/consumers/odr/

In order to settle dispute arising from a contractual relationship with a consumer or from whether such a contractual relationship exists at all, we will participate in dispute settlement proceedings before a consumer dispute resolution body. Consumers can contact their national European Consumer Centre in this regard. The respective contact details of the individual ECCs can be found at

https://www.evz.de/en/alternative-dispute-resolution/adr-in-europe/.





A little story about the word amber (BERNSTEIN)

The greek word for amber is "elektron": the root of today's term electronics. Even the greeks discovered the special feature of amber: by rubbing the natural amber can be electrostatically charged. The charged stone can attract dust particles.

Today you can use this property to check the authenticity of an amber. If it is real, it can be tested through charge rubbing on a cotton cloth.

You can also wear it as jewellery: it should protect from evil magic and give joy of life.

Just like our high-quality BERNSTEIN ESD Tools - them protect against electrostatics and give joy with the daily work.

(Autor Max Walter Hartmut Blombach)

#### **BERNSTEIN**

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SCREWING TOOLS TORQUE + BITS

Vers.01

#### **GET IN CONTACT WITH US**

#### **BERNSTEIN**

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### www.bernstein-tools.de

**VISIT US ON THE WEB** 

Product videos and blog posts round off our online offering. Furthermore, we also respect the traditional sales channel via specialist retailers and offer the option to present your webshop as an online sales platform for products by BERNSTEIN.

We update our product information on a regular basis and automatically using our Product Information System. This enables the quick

and up-to-date compilation of customer-speci-

fic data feeds for your own digital sale activities.

Take advantage of this service and always keep

Bernstein product information up to date!

## **SYMBOL LEGEND**



New product



Number of tools in sets



Weight



Dimensions



ESD protection (EPA suitable)



VDE tested





## FOR EVERY SCREW THE RIGHT BLADE



Demands on bolted connections are increasing, and this also applies increasingly to connections with low pretensioning forces, because bolts always tend to be tightened too tightly. This can lead to major damage. That is why it makes sense to tighten screws with a firmly defined torque.

For quality assurance in production assembly and in the repair of electronic components, tools must be used where the tightening torques can be limited. That is why we have developed a torque screwdriver and a series of **preset torque adapters** for easy handling in the electronics sector.

With the right tool and the correct torque specifications, you will produce a screw connection that will serve its purpose permanently and save you a costly thread repair.

In addition to conventional screwdriving tools, we also offer **ESD screwdriver solutions** for all common screw heads. Especially for electrotechnical applications, such as working on protected devices, sensitive circuits and connections.

All **ESD screwdrivers are EPA suitable** and are used as a safe method of dissipating electrostatic charge when working in protected areas (ESD workplace/ESD protection zone).

## Adapters turn any bit holder into a professional torque screwdriver PRESET TORQUE-ADAPTER **ONE SYSTEM MANY POSSIBILITIES** TORQUEline from BERNSTEIN impressed with its flexibility. We developed a tool system that allows to combine the single components in various ways. Thus, you always have the right torque for every application. 42 X 4 MM **BITS** triangle 1.6, 2.0, 2.2, 2.3 ESD-bit-holder with rotating cap torx security T6.TT.T8.T9.T10.T1 4 mm orange ring **TORQUE** 1/4" black ring **ADAPTER PRESET** torque Turn your bits and a holder into your perfect torque tool. 0.1 Nm - 0.7 Nm (4 mm) Can be conveniently combined with a preset torque for 0.6 Nm - 5.5 Nm (1/4") tightening or loosening. These precise fine tools are available from 0.1 to 5.5 Nm. Often as a complete solution for working on electronic devices, in quickchange systems, robot stations, aerospace, medical technology or simply on every workbench, wherever the exact torque is required. The click sound indicates when torque is reached, so the adapter cannot be overtorqued. No torque is released when loosening screws (due to the locked core shaft), so no additional loosening tool is required. 20.000 CLICKS ±10 % NM-TOLERANCE MAX 100 RPM

## **TORQUE SCREWDRIVER**

The torque-screwdriver was developed to carry out the screwdriving process precisely and reproducibly with the right tightening torque. With the screwdriver you can choose and adjust the torque (0.05 to 0.6 Nm).

It has a hexagon 1/4 inch bit holder with a clamping ball. The torque can be adjusted and locked via a knurled screw to the desired size.

Useful accessories for the bit adapter from hex 1/4 " to hex 4 mm bits or an extension (115 mm)

torque scale

locking function

pentalobe P2, P5, P6 BERNSTEIN  $4\,\mathrm{mm}$ 1/4" aluminium handle socket wrench 2.5, 3.0, 3.5, 4.0, 4.5, 5.0 cross-recess 000, 00, 0, 1 ADJUSTABLE

torque 0.05 Nm - 0.6 Nm (5 - 60 cNm)

## **TORQUE-SETS**

#### ▶ 4-970-G (with handle)

## Adapter set 0.1 - 0.6 Nm

6 torque adapters 0.1 - 0.2 - 0.3 - 0.4 - 0.5 - 0.6 Nm for 4 mm bits (outer  $\emptyset$  8 mm)

- + 1 bit adapter 1/4 inch to 4 mm, steel-aluminium, length 42.5 mm
- + 1 bit adapter 1/4 inch to 4 mm, chrome-plated steel, length 25 mm packed in a Quadro box (91 x 43 x 15 mm)
- + Screwdriver handle 4 mm with magnetic holder for 4 mm bits (blade outer Ø 7.5 mm)

ArtNr. Set	4-970-G	4-970-KSB
handle 4-106	✓	-
weight	108 g	70 g

#### ▶ 4-980-G (with handle)

#### Adapter set 0.6 - 3.0 Nm

6 torque adapters 0.6 - 0.9 - 1.2 - 1.4 - 2.0 - 3.0 Nm for 1/4" bits (outer Ø 12 mm) packed in a Quadro-Box (91 x 43 x 15 mm)

+ screwdriver handle 1/4" with magnetic holder for 1/4" bits (blade outer-Ø 10 mm)

ArtNr. Set	4-980-G	4-980-KSB
handle 4-107	✓	-
weight	198 g	141 g

### ▶ 4-989-G (with handle)

#### Adapter set 3.0 - 5.5 Nm

6 torque adapters 3.0 - 3.5 - 4.0 - 4.5 - 5.0 - 5.5 Nm for 1/4" bits (outer Ø 12 mm) packed in a Quadro-Box (91 x 43 x 15 mm)

+ screwdriver handle 1/4" with magnetic holder for 1/4" bits (blade outer-Ø 10 mm)

ArtNr. Set	4-989-G	4-989-KSB
handle 4-107	✓	-
weight	198 g	141 g

## **4-116**

### ESD Screwdriver-handle dissipative 105 bis 107 Ohm

5/32 inch (4 mm) bit magnetic holder holder outer-Ø 7.5 mm Length 95 mm, weight 31 g

#### **▶** 4-117

#### ESD Screwdriver-handle dissipative 10<sup>5</sup> bis 10<sup>7</sup> Ohm

1/4 inch (6.35 mm) bit magnetic holder holder outer-Ø 8.0 mm Length 105 mm, weight 58 g











## **TORQUE SCREWDRIVER**

#### ▶ 4-563

#### torque screwdriver 0.05 - 0.6 Nm with adapter

Aluminum handle with knurling, socket hex 1/4 inch (6,35 mm) Tolerance:  $\pm$  6%, total length 100 mm, weight 111 g



The torque from 0.05 to 0.6 Nm can be set to the required size using a knurled screw, the set value can then be locked. When the set torque is reached there should be an audible click and a click should be felt. If this is not the case, please readjust the small screw so that the screwdriver clicks audibly. When not in use, return the torque-screwdriver back in starting position (0 Nm). This relieves the preload and prevents premature wear.

The torque screwdriver is a precision instrument. To ensure warranty, calibration must be performed regularly and is the responsibility of the owner. The recommended calibration interval is every 12 months and may be shorter depending on the application. The product is lubricated by the manufacturer for lifelong use and should not be additionally oiled. Ideally, always put it back in the box after using to keep dirt and moisture away. Never disassemble the torque screwdriver yourself. If you need to repair the torque screwdriver, please contact a qualified service station. An improper repair attempt can lead to damage to this instrument and then it no longer meets the requirements of DIN ISO 6789 and ASME 8107.300-2010.

## PRESET TORQUE ADAPTER

#### Torque Adapter for 4 mm bits (5/32")

hex socket, hex drive, tolerance  $\pm 10\%$  adapter Ø 8 mm, material stainless steel total length 32 mm, weight 7,5 g



ArtNo.	NM	Kgfcm	in-lb	hex
4-971	0.1	1.0	0.9	4 mm
4-972	0.2	2.0	1.8	4 mm
4-973	0.3	3.1	2.7	4 mm
4-974	0.4	4.1	3.5	4 mm
4-975	0.5	5.1	4.4	4 mm
4-976	0.6	6.1	5.3	4 mm
4-977	0.7	7.1	6.2	4 mm

The clicking sound indicates when the torque has been reached so that the adapter cannot be over-tightened. When loosening screws there is no turning moment unlocking takes place, so no additional release tool is required.

Adapters are primarily suitable for manual operation. In connection with a power tool, we recommend a maximum speed of 100 rpm, with a minimum click Repetition. Higher speed possible as a custom-made product, please contact us!

#### ▶ Torque Adapter for 1/4 inch bits (6.35 mm)

hex socket, hex drive, tolerance  $\pm 10\,\%$  adapter Ø 12 mm, material stainless steel total length 38,3 mm, weight 21 g



ArtNo.	NM	Kgfcm	in-lb	hex
4-991-02	0.2	2.0	1.8	1/4"
4-991-03	0.3	3.1	2.7	1/4"
4-991-04	0.4	4.1	3.5	1/4"
4-991-05	0.5	5.1	4.4	1/4"
4-981	0.6	6.1	5.3	1/4"
4-982	0.9	9.2	8.0	1/4"
4-983	1.2	12.0	10.6	1/4"
4-984	1.4	14.0	12.4	1/4"
4-985	2.0	20.0	17.7	1/4"
4-985-5	2.5	25.5	22.1	1/4"
4-986	3.0	30.6	26.6	1/4"
4-986-5	3.5	35.7	31.0	1/4"
4-987	4.0	40.8	35.4	1/4"
4-987-5	4.5	45.9	39.8	1/4"
4-988	5.0	51.0	44.3	1/4"
4-988-5	5.5	56.1	48.7	1/4"

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IEW IEW

4-970

## **TORQUE SCREWDRIVERS AND SETS**

#### **4-930**

#### Bit set with Torque Screwdriver 0.05-0.6 NM 46 PCS

Tourque Screwdriver 5-60cNm (0.05-0.6Nm) hex Drive 1/4 inch

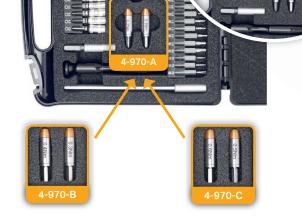
- + Bit set 42 pcs, 4mm hex bits (5/32 inch)
- + ESD bit holder dissipative for 4mm hex bits (5/32 inch)
- + Bit extension for 4mm hex bits (5/32 inch)
- + Bit Adapter 1/4 inch to 4mm bits, length 42.5mm weight: 420  $\rm g$



## Bit-set with Adapter 51 or 47 pcs

weight: 427 g / 410 g

ArtNr.	Content
4-970	6 torque 0.1 - 0.2 - 0.3 - 0.4 - 0.5 - 0.6 Nm for 4 mm bits + Bit-adapter 1/4 inch (6.35 mm) > 4 mm (5/32") + Bit-set 44 pcs
4-970-A	2 torque 0.1 + 0.2 Nm for 4 mm bits + Bit-adapter 1/4 inch (6.35 mm) > 4 mm (5/32") + Bit-set 44 pcs
4-970-B	2 torque 0.3 + 0.4 Nm for 4 mm bits + Bit-adapter 1/4 inch (6.35 mm) > 4 mm (5/32") + Bit-set 44 pcs
4-970-C	2 torque 0.5 + 0.6 Nm for 4 mm bits + Bit-adapter 1/4 inch (6.35 mm) > 4 mm (5/32") + Bit-set 44 pcs



## Bit adapter 1/4 inch (6.35 mm) > 4 mm (5.32 inch)

## ▶ 4-564 plug-in shank

Material steel/aluminium, blade length 28 mm, blades-Ø 8 mm Total length 42.5 mm, weight 11 g  $\,$ 

## ▶ 4-566 plug-in shank

Material steel chrome plated, blade length 13 mm, blades-Ø 8mm Total length 25 mm, weight 6 g

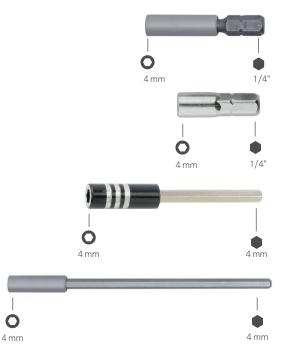
## Extensions for C4 (4mm) bits

## ▶ 4-567 Bit extension 60 mm

Blade length 35 mm, shank length 25 mm (shank outer-Ø 8mm) Socket and drive hex 4 mm Material steel/aluminium eloxed, weight 7.5 g

#### ▶ 6-340-2 Bit extensions 115 mm

Blade length 90 mm, shank length 25 mm (shank outer-Ø 8mm) Socket and drive hex 4 mm Material steel/aluminium sandblasted, weight 13 g



## **BITS AND BIT SETS**

#### ▶ 6-340-3

## 4 mm Bit Set 42 pcs (without box)

3 bit bars with 36 special bits

1 bit bar with 6 nut setters

Quality steel sandblasted nickel-plated 52-54 HRC C4 Bits filigree tool for fine work

hex, blade length 22 mm, blades Ø 8 mm

Dimensions bit bars. 65 x 8 x 28 mm, weight: 117 g

Bits		Bits	
$\ominus$	slot 1.0 - 1.5 - 2.0 - 2.5 - 3.0		quare S0 - S1
<b>(1)</b>	cross-recess PH000-PH00-PH0-PH1		hex 0.9 - 1.3 - 1.5 - 2.0 - 2.5 - 3.0
#	torx T3-T4-T5-T6-T7-T8-T9-T10-T15		pentalobe P2 - P5 -P6
	triangle 1.6 - 2.0 - 2.2 - 2.3	0	nut setter 2.5 - 3.0 - 3.5 - 4.0 - 4.5 - 5.0
$\bigcirc$	tri-point 0 -1	•	SIM-eject

#### ▶ 6-340

### 4 mm Bit Set 44 pcs (without box)

3 bit bars with 36 special bits (sizes see 6-340-3)

1 bit bar with 6 nut setters

Quality steel sandblasted nickel-plated 52-54 HRC

- + ESD handle (dissipative 10^6 to 10^9 Ohm)
- + Bit extension 115 mm

Dimensions bit bars. 65 x 8 x 28 mm, weight 157 g



#### ▶ 6-350

## 4 mm Bit Set 45 pcs with ESD-Box

3 bit bars with 36 special bits (sizes see 6-340-3)

1 bit bar with 6 nut setters

Quality steel sandblasted nickel-plated 52-54 HRC

- + ESD handle (dissipative 10^6 to 10^9 Ohm)
- + Bit extension 115 mm
- + Bit adapter 1/4 inch to 4 mm

Dimensions box 135 x 85 x 20 mm, weight 215 g



#### ▶ 4-910

## 4 mm Bit Case 47 pcs

3 bit bars with 36 special bits (sizes see 6-340-3)

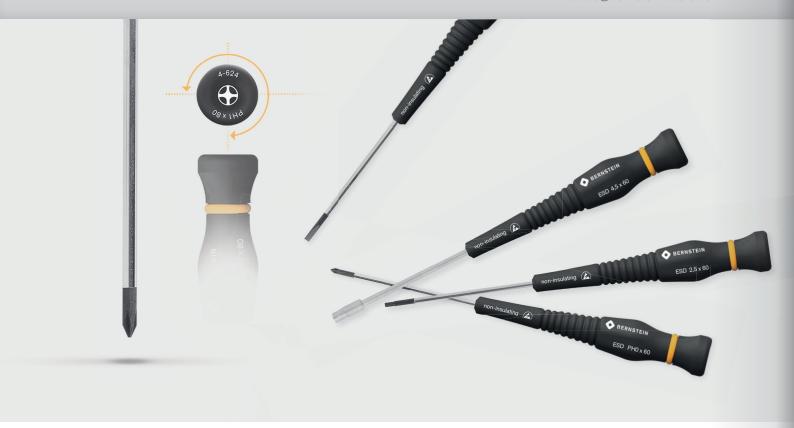
1 bit bar with 6 nut setters

Quality steel sandblasted nickel-plated 52-54 HRC

- + ESD handle (dissipative 10^6 to 10^9 Ohm)
- + Bit extension 115 mm
- + LCD opener suction cup with ring
- + Opening tool, metal opener flat
- + ESD SMD tweezers 120mm form 2a stainless steel (dissipative 10^6 to 10^9 Ohm)

Dimensions case 175 x 160 x 45 mm, weight 420 g





## **ESD ELECTRONICS SCREWDRIVER TOOL**

For all work on electrostatically sensitive components. The blades are made of quality steel to ensure torsion resistance - at maximum stress. The tips are burnished for dimensional stability and to prevent chrome chipping (except sockets). The rotating cap is smooth-running and allows the screwdriver to be held in position despite starting pressure. Thanks to the ergonomically shaped handle, the screwdriver fits perfectly in the hand. 100% Made in Germany.

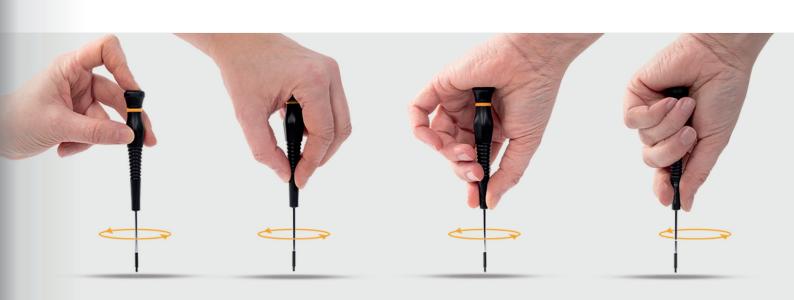


The following types are available, specifications in mm:



ArtNo.	Symbol	Size / drive	Blade length	Blade width	Blade thickness	Blade diameter	Handle length	Total length	Weight in g
4-603	$\ominus$	slot	60	1.5	0.25	2.5	100	160	16
4-605	$\ominus$	slot	60	2.0	0.40	2.5	100	160	16
4-606	$\ominus$	slot	60	2.5	0.40	2.5	100	160	16
4-607	$\ominus$	slot	60	3.0	0.50	3.0	100	160	18
4-608	$\ominus$	slot	60	3.5	0.60	3.5	100	160	18
4-609	$\Theta$	slot	60	4.0	0.80	4.0	100	160	18
4-621	<b></b>	PH000	60	-	_	2.5	100	160	16
4-622	<b>⊕</b>	PH00	60	-	_	2.5	100	160	16
4-623	<b>⊕</b>	PH0	60	-	_	3.0	100	160	16
4-624	<b>⊕</b>	PH1	80	_	_	4.5	100	180	20

ArtNo.	Symbol	Size / drive	Blade length	Blade width	Blade thickness	Blade diameter	Handle length	Total length	Weight in g
6-611	0	socket wrench	60	1.5	_	2.5	100	160	18
6-612	0	socket wrench	60	2.0	_	3	100	160	20
6-613	0	socket wrench	60	2.5	_	4	100	160	22
6-614	0	socket wrench	60	3.0	_	5	100	160	24
6-616	0	socket wrench	60	3.5	_	5.3	100	160	26
6-617	0	socket wrench	60	4.0	_	5.5	100	160	28
6-618	0	socket wrench	60	4.5	_	6.2	100	160	30
6-619	0	socket wrench	60	5.0	_	6.8	100	160	32
6-621	0	socket wrench	60	5.5	_	7.6	100	160	34
6-631	•	allen key	50	0.7	_	2.5	100	150	14
6-632	•	allen key	50	0.9	_	2.5	100	150	14
6-633	•	allen key	50	1.3	_	2.5	100	150	14
6-634	•	allen key	50	1.5	_	2.5	100	150	14
6-635	•	allen key	50	2.0	_	2.5	100	150	14
6-636	•	allen key	60	2.5	_	3.0	100	160	16
6-656	*	T1	50	_	_	2.5	100	150	14
6-657	*	T2	50	_	_	2.5	100	150	14
6-658	*	Т3	50	_	_	2.5	100	150	14
6-659	*	Т4	50	_	_	2.5	100	150	14
6-661	*	T5	50	_	_	2.5	100	150	14
6-662	*	T6	50	_	_	3.5	100	150	15
6-663-L	*	T7 with hole	50	_	_	3.5	100	150	15
6-664-L	*	T8 with hole	60	-	_	3.5	100	160	16
6-665-L	*	T9 with hole	60	_	_	4.0	100	160	18
6-666-L	*	T10 with hole	80	_	_	4.0	100	180	20



## **TOOL HOLDER**

## **STOREY**

## For more organisation at your workstation

The STOREY tool holder was developed as practical storage for hand tools so that your tools are always within reach. Whether as a table stand or wall holder.

Holder made of 1.5 mm sheet steel ESD powder coated RAL9005 dissipative 10<sup>5</sup>- 10<sup>9</sup> Ohm 100% Made in Germany



## **ESD ELECTRONIC SCREWDRIVERS**

The ergonomic handle of the screwdriver is made of ESD plastic (PP black) and has a surface resistance of  $10^5$  to  $10^7$  Ohm. The matt chrome-plated blade is made of high-quality chrome-molybdenum steel (hardness greater than 55 HRC) according to DIN ISO and is hardened over its entire length. 100% Made in Germany.

## **4-610**

## ESD slotted screwdriver set 6 pcs

for hanging or standing weight: 277 g

ArtNo.		Content
4-603	$\ominus$	slot blade 1.5 x 0.25 x 60 mm
4-605	$\Theta$	slot blade 2.0 x 0.4 x 60 mm
4-606	$\Theta$	slot blade 2.5 x 0.4 x 60 mm

ArtNo.		
4-607	$\ominus$	slot blade 3.0 x 0.5 x 60 mm
4-608	$\Theta$	slot blade 3.5 x 0.6 x 60 mm
4-609	$\ominus$	slot blade 4.0 x 0.8 x 60 mm



#### **4-620**

## ESD cross-recess screwdriver set 6 pcs

for hanging or standing weight: 270 g

ArtNo.		Content
4-603	$\ominus$	slot blade 1.5 x 0.25 x 40 mm
4-605	$\ominus$	slot blade 2.0 x 0.4 x 40 mm
4-607	$\ominus$	slot blade 3.0 x 0.5 x 50 mm

ArtNo.		Content
4-621	<b>⊕</b>	cross-recess PH000
4-622	<b>(1)</b>	cross-recess PH00
4-623	<b>(1)</b>	cross-recess PH0



## 6-610

## ESD socket wrench-screwdriver set 6 pcs

for hanging or standing weight: 317 g

Content
ESD hex socket wrench 2.0 mm
ESD hex socket wrench 3.0 mm
ESD hex socket wrench 4.0 mm

ArtNo.		Content
6-618	0	ESD hex socket wrench 4.5 mm
6-619	0	ESD hex socket wrench 5.0 mm
6-621	0	ESD hex socket wrench 5.5 mm





## ▶ 6-630

## ESD allen key screwdriver set 6 pcs

for hanging or standing weight: 262 g

ArtNo.	Content
6-631	ESD allen key hex 0.7 mm
6-632	ESD allen key hex 0.9 mm
6-633	ESD allen key hex 1.3 mm

ArtNo.	Content		
6-634	ESD allen key hex 1.5 mm		
6-635	ESD allen key hex 2.0 mm		
6-636	ESD allen key hex 2.5 mm		





## ▶ 6-660

## ESD torx screwdriver set 6 pcs

for hanging or standing weight: 286 g

ArtNo.		Content
6-661	*	TORX T5
6-662	*	TORX T6
6-663 L	*	TORX T7 with hole

ArtNo.		Content
6-664 L	*	TORX T8 with hole
6-665 L	*	TORX T9 with hole
6-666 L	*	TORX T10 with hole





## **ESD ELECTRONICS SCREWDRIVER SETS**

## ▶ 2100

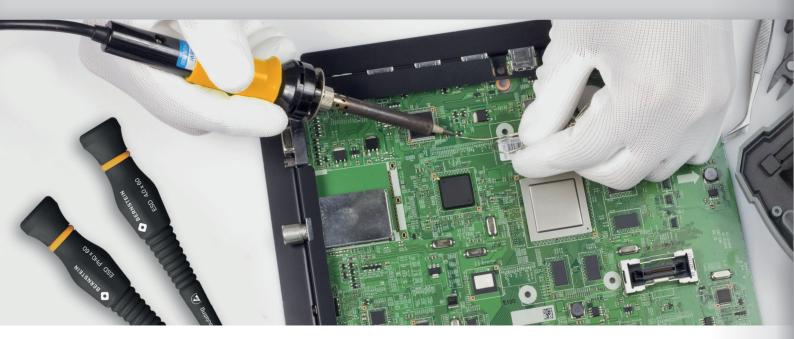
## ESD tool set VARIO 6 pcs

for hanging or standing weight: 445 g

ArtNo.	Content
5-090-0	ESD tool holder VARIO 8 slots
3-604-15	ESD side cutters CLASSICline flush 115mm
3-633-15	ESD snipe nose pliers CLASSICline 120 mm
4-603	ESD screwdriver slot blade 1.5 x 0.25 x 60 mm
4-621	ESD screwdriver cross-recess PH000
5-055-13	ESD SMD tweezers 120mm form 7a stainless steel angle 40° dissipative
5-068-13	ESD SMD tweezers 120mm form13 stainless steel angle 45° dissipative







## ▶ 4-610-VC

## ESD screwdriver set VARIO 8 pcs

Tool holder made of steel with dissipative coating RAL9005 Surface resistance  $10^5$  -  $10^9$  Ohm, for hanging or standing, weight: 520 g

ArtNo.		Content
5-090-0		ESD tool holder VARIO 8 slots
4-603	$\ominus$	ESD screwdriver slot blade 1.5 x 0.25 x 60 mm
4-605	$\Theta$	ESD screwdriver slot blade 2.0 x 0.4 x 60 mm
4-606	$\ominus$	ESD screwdriver slot blade 2.5 x 0.4 x 60 mm
4-607	$\ominus$	ESD screwdriver slot blade 3.0 x 0.5 x 60 mm
4-608	$\ominus$	ESD screwdriver slot blade 3.5 x 0.6 x 60 mm
4-609	$\ominus$	ESD screwdriver slot blade 4.0 x 0.8 x 60 mm
3-604-15		ESD side cutters CLASSICline flush 115mm
5-055-13		ESD SMD tweezers 120mm form 7a stainless steel angle 40° dissipative





## ▶ 4-620-VC

## ESD screwdriver set VARIO 8 pcs

Tool holder made of steel with dissipative coating RAL9005 Surface resistance  $10^5$  -  $10^9$  Ohm, for hanging or standing, weight:  $545\,g$ 

ArtNo.		Content
5-090-0		ESD tool holder VARIO 8 slots
4-603	$\ominus$	ESD screwdriver slot blade 1.5 x 0.25 x 60 mm
4-605	$\ominus$	ESD screwdriver slot blade 2.0 x 0.4 x 60 mm
4-607	$\Theta$	ESD screwdriver slot blade 3.0 x 0.5 x 60 mm
4-621	<b>(</b>	ESD screwdriver cross-recess PH000
4-622	<b>①</b>	ESD screwdriver cross-recess PH00
4-623	<b></b>	ESD screwdriver cross-recess PH0
3-604-15		ESD side cutters CLASSICline flush 115mm
5-055-13		ESD SMD tweezers 120mm form 7a stainless steel angle 40° dissipative





#### ▶ 6-630-VC

#### ESD allen key tool set VARIO 8 pcs

Tool holder made of steel with dissipative coating RAL9005 Surface resistance 10<sup>5</sup> - 10<sup>9</sup> Ohm, for hanging or standing, weight: 520 g

ArtNo.	Content
5-090-0	ESD tool holder VARIO 8 slots
6-631	ESD allen key hex 0.7 mm
6-632	ESD allen key hex 0.9 mm
6-633	ESD allen key hex 1.3 mm
6-634	ESD allen key hex 1.5 mm
6-635	ESD allen key hex 2.0 mm
6-636	ESD allen key hex 2.5 mm
3-604-15	ESD side cutters CLASSICline flush 115mm
5-055-13	ESD SMD tweezers 120mm form 7a stainless steel angle 40° dissipative



## ▶ 6-610-VC

## ESD socket wrench tool set VARIO 8 pcs

Tool holder made of steel with dissipative coating RAL9005 Surface resistance 10 $^5$  - 10 $^9$  Ohm, for hanging or standing, weight: 575 g

ArtNo.	Content
5-090-0	ESD tool holder VARIO 8 slots
6-612	ESD hex socket wrench 2.0 mm
6-614	ESD hex socket wrench 3.0 mm
6-617	ESD hex socket wrench 4.0 mm
6-618	ESD hex socket wrench 4.5 mm
6-619	ESD hex socket wrench 5.0 mm
6-621	ESD hex socket wrench 5.5 mm
3-604-15	ESD side cutters CLASSICline flush 115mm
5-055-13	ESD SMD tweezers 120mm form 7a stainless steel angle 40° dissipative



## ▶ 6-660-VC

## ESD Torx tool set VARIO 8 pcs

Tool holder made of steel with dissipative coating RAL9005 Surface resistance  $10^5$  -  $10^9$  Ohm, for hanging or standing, weight:  $555\,g$ 

ArtNo.	Content
5-090-0	ESD tool holder VARIO 8 slots
6-661	ESD screwdriver TORX T5
6-662	ESD screwdriver TORX T6
6-663 L	ESD screwdriver TORX T7 with hole
6-664 L	ESD screwdriver TORX T8 with hole
6-665 L	ESD screwdriver TORX T9 with hole
6-666 L	ESD screwdriver TORX T10 with hole
3-604-15	ESD side cutters CLASSICline flush 115mm
5-055-13	ESD SMD tweezers 120mm form 7a stainless steel angle 40° dissipative





## **ESD INTERCHANGEABLE SCREWDRIVER SETS**

#### ESD interchangeable screwdrivers, single or in a set,

in a practical roll-up case made of dissipative material (106-109 Ohm), equipped with double-sided screwdriver blades and an interchangeable ESD plastic handle. The  $\,$ holder is a brass clamping sleeve, suitable for all hexagon interchangeable blades with 4 mm wrench width. The blades are made of high-quality chrome vanadium steel, hardened over their entire length (HRC 56-58), matt chrome-plated, tip black burnished.



The following types are available, specifications in mm:

ArtNo.	Symbol	Size / drive	Blade length	Blade width	Blade thickness	Blade diameter	Handle length	Total length	Weight in g
4-901	Handle	_	_	_	_	_	85	105	16
4-905	$\ominus$	Slot	120	1.5/3.0	0.4/0.6	4.5	_	120	12
4-906	$\ominus$	Slot	120	2.0/3.5	0.4/0.6	4.5	_	120	12
4-907	$\ominus$	Slot	120	2.5/4.0	0.6/0.9	4.5	_	120	12
4-911	<b></b>	PH00/PH000	120	2.0/1.5	0.8/0.76	4.5	_	120	12
4-912	<b>+</b>	PH0/PH1	120	3.0/4.5	0.84/1.3	4.5	_	120	12
4-919	*	T3/T4	120	1.12/1.30	_	4.5	_	120	12
4-921	*	T5/T6	120	1.37/1.65	_	4.5	_	120	12
4-922 L	*	T7/T8	120	1.97/2.30	_	4.5	_	120	12
4-923 L	*	T9/T10	120	2.48/2.72	_	4.5	_	120	12
4-932	$\otimes \otimes$	TW0/FW0	120	_	0.45	4.5	_	120	12
4-933	$\otimes \otimes$	TW1/FW1	120	_	0.57	4.5	_	120	12
4-934	$\otimes \otimes$	TW2/FW2	120	_	0.75	4.5	_	120	12

#### ▶ 4-920 ESD screwdriver set 9 pcs

ArtNo.		Content
4-960-0		ESD dissipative roll-up case 11 empty compartments
4-901		ESD interchangeable handle
4-905	$\ominus$	Interchangeable blade slot 1.5/3.0mm
4-906	$\ominus$	Interchangeable blade slot 2.0/3.5 mm
4-907	$\ominus$	Interchangeable blade slot 2.5/4.0 mm
4-911	$\bigoplus$	Interchangeable blade PH00/PH000
4-912	$\bigoplus$	Interchangeable blade PH0/PH1
4-921	*	Interchangeable blade TORX T5/T6
4-922 L	*	Interchangeable blade TORX T7/T8
4-923 L	*	Interchangeable blade TORX T9/T10

## ▶ 4-960 ESD screwdriver set 12 pcs

ArtNo.		Content
4-960-0		ESD dissipative roll-up case 11 empty compartments
4-901		ESD interchangeable handle
4-905	$\overline{\bigcirc}$	Interchangeable blade slot 1.5/3.0mm
4-907	$\ominus$	Interchangeable blade slot 2.5/4.0 mm
4-911	<b>①</b>	Interchangeable blade PH00/PH000
4-912	<b>①</b>	Interchangeable blade PH0/PH1
4-919	*	Interchangeable blade TORX T3/T4
4-921	*	Interchangeable blade TORX T5/T6
4-922 L	*	Interchangeable blade TORX T7/T8
4-923 L	*	Interchangeable blade TORX T9/T10
4-932	$\otimes \otimes$	Interchangeable blade TW0/FW0
4-933	$\otimes$	Interchangeable blade TW1/FW1
4-934	8	Interchangeable blade TW2/FW2







## **BITS AND BIT SETS**

## ▶ 4-950

## Screwdriver set 13 pcs

Contents 1 handle and 6 bit blades Ø 4 mm (5/32 inch)
Space for 5 blades, blades nickel-plated, tips burnished, 58-62 HRC
Working length, extendable from 18 to 72 mm
Length 115 mm, weight 112 g

Bit	is	Description
$\in$	$\ni$	Slot 1.5 - 2.5
(	D	Cross-recess PH0 - PH00
1	+	Torx T6 - T8 - T9 - T10
		Hex 1.5 - 2.0 - 2.5 - 3.0

Practical aluminum handle with integrated, smooth-running magazine (with lock-function) for up to 5 high-quality bit blades or bits with a diameter of 4 mm.





## ▶ 4-951

## Schraubendreher Satz 33-tlg. (12 Bits im Griff)

Contents 1 handle and 32 bits sizes, Ø 4 mm (5/32 inch) Space for 15 blades, blades nickel-plated, tips burnished, 58-62 HRC length 165 mm, weight 105 g

Bits	Beschreibung
$\Theta$	Schlitz 1.0 - 1.5 - 2.0 - 2.5 - 3.0 - 3.5 - 4.0 mm
<b>⊕</b>	Kreuz-Schlitz PH000 - PH00 - PH1 - PZ0 - PZ1
*	Torx T4 - T5 - T6 - T7 - T8 - T9 - T10 - T15 - T20
	Sechskant 0.5-0.7-0.9-1.5-2.0-2.5-3.0-4.0 mm 1/16 - 3/32

These handy precision screwdrivers are perfect for technical instruments or devices, both in professional use and for the do-it-yourselfer or hobbyist.





#### ▶ 6-350

#### ESD Bit-Box 45 pcs

3 bit bars equipped with 36 special bits and 1 bit bar with 6 nut setter 4mm (5/32 inch) hex bits, blade length 22 mm, blades Ø 8 mm quality steel sandblasted and nickel-plated 52-54 HRC Dimensions box inside 130x80x14, outside 135x85x20 mm, weight 215 g

ArtNo.	Content
6-340-3	C4-Bit-Satz 42 tlg, bestehend aus: Slot 1.0 - 1.5 - 2.0 - 2.5 - 3.0 Cross-recess PH000 - PH00 - PH0 - PH1 Torx T3 - T4 - T5 - T6 - T7 - T8 - T9 - T10 - T15 Hex 0.9 - 1.3 - 1.5 - 2.0 - 2.5 - 3.0 Wrench 2.5 - 3.0 - 3.5 - 4.0 - 4.5 - 5.0 Triangle 1.6 - 2.0 - 2.2 - 2.3 / Square S0 - S1 Pentalobe P2 - P5 - P6 / SIM-Eject / Tri-Point 0 - 1
6-340-2	Bit extension 115 mm
6-340-1	ESD Bit holder dissipative 10 <sup>6</sup> to 10 <sup>9</sup> Ohm
4-564	Bit adapter 1/4 inch to 4mm, length 42.5 mm







## ▶ 6-355

## 1/4 Zoll Bit-Box 30 pcs

Screwdriver handle with bit magnetic holder 1/4 inch (SW6.35) C6.3 Bits length 25 mm, according to DIN standard, Bits made of tool steel 58-60 HRC in a practical foldding out box with a hanger on the back, Dimensions box outside 160x100x45 mm weight  $384\,g$ 

ArtNo.	Content
6-340-3	1/4 inch bit set consisting of: Slot 3.0 - 3.5 - 4.0 - 5.0 Cross-recess PH0 - PH1 - PH2 (2x) Pozi drive PZ1 - PZ2 (2x each) Torx T5 - T6 - T7 - T8 - T9 - T10 - T15 - T20 - T25 Hex 1.5 - 2.0 - 2.5 - 3.0 - 4.0 (2x) - 5.0 - 6.0
4-107	crewdriver handle with bit magnetic holder



#### NEW

## ▶ 6-355-ESD

## 1/4 Inch Bit-Box 30 pcs with ESD Handle

ESD Screwdriver handle with bit magnetic holder 1/4 inch (SW6.35) 
C6.3 Bits length 25 mm, according to DIN standard, Bits made of tool steel 58-60 HRC in a practical foldding out box with a hanger on the back, Dimensions box outside 160x100x45 mm weight  $384\,g$ 

,	/4 inch bit set consisting of: Slot 3.0 - 3.5 - 4.0 - 5.0
<b>6-340-3</b> Po	Cross-recess PH0 - PH1- PH2 (2x) Pozi drive PZ1- PZ2 (2x each) Forx T5 - T6 - T7 - T8 - T9 - T10 - T15 - T20 - T25 Hex 1.5 - 2.0 - 2.5 - 3.0 - 4.0 (2x) - 5.0 - 6.0
<b>4-107</b> ES	SD Screwdriver handle with bit magnetic holder

ITEM LIKE 6-355, ONLY WITH ESD HANDI F 4-117

## **ESD SCREWDRIVERS**



The ergonomic handle of the screwdriver is made of ESD plastic (PP black) and has a surface resistance of  $10^5$  to  $10^7$  Ohm. The matt chrome-plated blade is made of high-quality chrome-molybdenum steel (hardness over 55 HRC) according to DIN ISO and is hardened over its entire length.

For all work on electrostatically sensitive components. The blades are specially hardened to ensure torsion resistance even under maximum stress. The tips are burnished for dimensional stability and to prevent chrome chipping. Thanks to the ergonomically shaped handle, the screwdriver fits perfectly in the hand.



The following types are available, specifications in mm:

ArtNo.	Symbol	Size / drive	Blade length	Blade width	Blade thickness	Blade diameter	Handle length	Total length	Weight in g
4-632	$\ominus$	Slot	100	4.0	0.8	4.0	90	190	40
4-633	$\ominus$	Slot	125	5.5	1.0	6.0	100	225	65
4-652	<b>⊕</b>	PH1	80	-	_	4.5	90	170	40
4-653	<b>⊕</b>	PH2	100	-	-	6.0	100	200	75

## **SCREWDRIVERS POWERLINE**

For the professional user as well as for the hobby craftsman a durable hand tool. The chrome-plated blade is made of a high quality chrome vanadium steel and hardened over its entire length. The tip is burnished for perfect dimensional stability and to avoid chrome chips. The ergonomically shaped multi-component handle is slip-proof, impact-resistant and has a practical hanging hole for your workbench. 100% Made in Germany.

The quality is particularly evident in the manufacturing process of the blade. During quality testing, the blade is clamped in a torque test rig and twisted until it breaks smoothly. According to DIN, this has to be done in a very specific Newton metre range. Only a smooth fracture is safe! Low quality products can splinter or tear, which can be extremely dangerous.



The following types are available, specifications in mm:

ArtNo.	Symbol	Size / drive	Blade lenght	Blade width	Blade thickness	Blade diameter	Handle length	Handle size	Total length	Weight in g
4-331	$\ominus$	Slot	50	6	1	3,0	100	1	150	34
4-521	$\Theta$	Slot	75	2.5	0.4	2.5	100	1	175	26
4-522	$\ominus$	Slot	75	3	0.5	3	100	1	175	27
4-523	$\ominus$	Slot	100	4	0.8	4	100	1	200	36
4-524	$\ominus$	Slot	153	5	1	5.5	107	2	260	74
4-504	$\ominus$	Slot	100	5.5	1	6	107	2	207	62
4-506	$\ominus$	Slot	126	6.5	1.2	6	114	3	240	93
4-508	$\ominus$	Slot	150	8	1.2	8	121	4	271	141
4-532	<b>+</b>	PH0	60	_	_	3	100	1	160	28
4-533	<b>⊕</b>	PH1	80	_	_	4.5	107	2	187	55
4-534	<b>⊕</b>	PH2	101	_	_	6	114	3	215	84
4-542		PZ0	60	_	_	3	100	1	160	28
4-543		PZ1	80	_	_	4.5	107	2	187	55
4-544		PZ2	101	_	_	6	114	3	215	90
6-979	*	T5	56	1.37	_	3.5	100	1	156	25
6-981	*	T6	66	1.65	_	3.5	100	1	166	29
6-983 L	*	Т8	75	2.30	_	3.5	100	1	175	29
6-984 L	*	Т9	75	2.48	_	4	100	1	175	29
6-985 L	*	T10	85	2.72	_	4	100	1	185	32
6-986 L	*	T15	85	3.26	_	4	100	1	185	34
6-987 L	*	T20	100	3.84	_	4	100	1	200	35
6-104	0	5	128	_	_	2	107	2	235	50
6-105	0	5.5	128	_	_	2	107	2	235	50
6-107	0	7	128	_	_	2	107	2	235	78

## ▶ 4-530

#### Screwdriver set POWERline 7pcs

Blade matt chrome-plated, tip burnished, material chrome-vanadium-molybdenum steel HRC 56-58, Blade matt chrome plated, tip burnished, plastic handle non-slip impact resistant 100% Made in Germany, weight 520 g

ArtNo.		Content
4-343 VDE	$\Theta$	VDE voltage tester slot blade 3.0 x 0.7 x 60 mm
4-504	$\Theta$	Screwdriver POWERline slot blade 5.5 x 1.0 x 100 mm
4-506	$\ominus$	Screwdriver POWERline slot blade 6.5 x 1.2 x 125 mm
4-523	$\ominus$	Screwdriver POWERline slot blade 4.0 x 0.8 x 100 mm
4-524	$\ominus$	Screwdriver POWERline slot blade 5.0 x 1.0 x 150 mm
4-533	<b>(1)</b>	Screwdriver POWERline cross-recess PH1
4-534	<b>(1)</b>	Screwdriver POWERline cross-recess PH2



## **SCREWDRIVER FOR SPECIAL REQUIREMENTS**

#### ▶ MINI Screwdriver short

Material chrome-vanadium-molybdenum steel HRC 56-58 Plastic handle ergonomically shaped impact resistant





ArtNo.	Symbol	Size / drive	Blade length	Blade width	Blade thickness	Blade diameter	Handle length	Total length	Weight in g
4-321	$\ominus$	Slot	25	4.0	0.8	4.0	55	80	30
4-261	<b>(1)</b>	PH1	25	_	_	4.5	55	80	30

#### ▶ Grub-Screwdriver

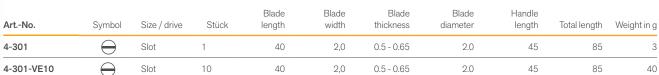
for loosening the grub screws or worm screws Material tool steel blade, plastic handle hard stable



ArtNo.	Symbol	Size / drive	Stück	Blade length	Blade widthe	Blade thickness	Blade diameter	Handle length	Total length	Weight in g
4-311	$\ominus$	Slot	1	80	2.8	0.6	3.0	60	140	10
4-302-VE10	$\ominus$	Slot	10	80	2.8	0.6	3.0	60	140	50

## Liliput screwdriver

Material tool steel, blade width 2.0 with a tolerance of +/-0.2 mm



## ▶ 4-820

## Liliput screwdriver set 60 pcs in holder

Set of Art-No. 4-301 (blue plastic stand) total weight 235  $\ensuremath{\mathrm{g}}$ 



#### Offset screwdriver

plastic handle hard stable, blade  $\emptyset$  4.0 mm, blade width 4 mm, blade thickness 0.8 mm material chrome vanadium molybdenum steel HRC 56-58, length 100 mm, weight 12 g



# **MINI-ALU-SCREWDRIVERS** High-precision screwdrivers according to factory standard Aluminium handle with smooth-running rotating cap Radial concentricity with optimal adhesion Blades molybdenum-vanadium steel burnished Glare-free even in high light Precision blade hardened HRC 58-61 100% Made in Germany 4-363-AL 4-367-AL PH0 **CROSS-RECESS**

The rotating cap enables optimum handling for particularly tricky cases.

The knurling ensures a particularly good grip.

Thanks to the aluminium handle, the screwdrivers fit perfectly in the hand and are almost nickel-free.

4-373-AL

4-374-AL

4-3706-AL

**SLOT** 

The burnished blade is glare-free and, with good care, particularly durable and environmentally friendly.

2.0

## **INDIVIDUALLY**

## **AND AS A SET**

### ▶ 4-360-E05

## Watchmakers screwdriver set 7 pcs

In plastic case Weight: 111 g

ArtNo.	Content	
4-372-AL	Watchmaker screwdriver slot blade 1.5	x 0.23 x 16 mm
4-373-AL	Watchmaker screwdriver slot blade 2.0	x 0.4 x 22 mm
4-374-AL	Watchmaker screwdriver slot blade 2.5	x 0.4 x 22 mm
4-375-AL	Watchmaker screwdriver slot blade 3.0	x 0.5 x 22 mm
4-376-AL	Watchmaker screwdriver slot blade 3.5	x 0.6 x 22 mm
4-367-AL	Watchmaker screwdriver cross-recess	PH0
4-368-AL	Watchmaker screwdriver cross-recess	PH1





## WATCHMAKER SCREWDRIVERS

CROSS-RECESS



SLOT



The following types are available, specifications in mm:

ArtNo.	Symbol	Size / drive	Blade lenght	Blade width	Blade thickness	Blade diameter	Handle length	Total length	Weight in g
4-363-AL	<b>⊕</b>	PH00000	16	1.0	_	1.0	66	82	3
4-364-AL	<b>⊕</b>	PH0000	16	1.5	_	1.5	66	82	3
4-365-AL	<b>⊕</b>	PH000	22	2.0	_	2.0	78	100	5
4-366-AL	<b>⊕</b>	PH00	22	2.5	_	2.5	78	100	5
4-367-AL	<b>⊕</b>	PH0	22	3.0	_	3.0	90	112	9.5
4-368-AL	<b>⊕</b>	PH1	22	3.5	_	3.5	90	112	9.5
4-3706-AL	$\ominus$	Slot	14	0.6	0.15	1.0	67	81	3
4-371-AL	$\ominus$	Slot	14	1.0	0.20	1.0	67	81	3
4-372-AL	$\ominus$	Slot	16	1.5	0.23	1.5	67	83	3
4-373-AL	$\ominus$	Slot	22	2.0	0.40	2.0	78	100	5
4-374-AL	$\ominus$	Slot	22	2.5	0.40	2.5	78	100	5.5
4-375-AL	$\ominus$	Slot	22	3.0	0.50	2.5	90	112	9.5
4-376-AL	$\ominus$	Slot	22	3.5	0.60	2.5	90	112	9.5

## ▶ 4-360-E01

## Watchmakers screwdriver set 3pcs (slot)

In plastic case

Weight: 17 g

	4-3	60-	E02
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## Watchmakers screwdriver set 3pcs (PH)

In plastic case Weight: 22 g

ArtNo.		Content	ArtNo.		Content
4-3706-AL	$\ominus$	Watchmaker screwdriver slot blade 0.6 x 0.15 x 14 mm	4-364-AL	<b>⊕</b>	Watchmaker screwdriver cross-recess PH0000
4-371-AL	$\ominus$	Watchmaker screwdriver slot blade 1.0 x 0.2 x 14 mm	4-365-AL	<b>⊕</b>	Watchmaker screwdriver cross-recess PH000
4-372-AL	$\ominus$	Watchmaker screwdriver slot blade 1.5 x 0.23 x 16 mm	4-366-AL	<b>⊕</b>	Watchmaker screwdriver cross-recess PH00

## ▶ 4-360-E03

## Watchmakers screwdriver set 6pcs (slot)

In plastic case Weight: 37 g

## Watchmakers screwdriver set 6pcs

In plastic case Weight: 30 g

▶ 4-360-E04

ArtNo.		Content	ArtNo.		Content
4-3706-AL	$\ominus$	Watchmaker screwdriver slot blade 0.6 x 0.15 x 14 mm	4-3706-AL	$\ominus$	Watchmaker screwdriver slot blade 0.6 x 0.15 x14 mm
4-371-AL	$\ominus$	Watchmaker screwdriver slot blade 1.0 x 0.2 x 14 mm	4-371-AL	$\ominus$	Watchmaker screwdriver slot blade 1.0 x 0.2 x 14 mm
4-372-AL	$\ominus$	Watchmaker screwdriver slot blade 1.5 x 0.23 x 16 mm	4-372-AL	$\ominus$	Watchmaker screwdriver slot blade 1.5 x 0.23 x 16 mm
4-373-AL	$\ominus$	Watchmaker screwdriver slot blade 2.0 x 0.4 x 22 mm	4-364-AL	<b>(1)</b>	Watchmaker screwdriver cross-recess PH0000
4-374-AL	$\Theta$	Watchmaker screwdriver slot blade 2.5 x 0.4 x 22 mm	4-365-AL	<b>(1)</b>	Watchmaker screwdriver cross-recess PH000
4-375-AL	$\ominus$	Watchmaker screwdriver slot blade 3.0 x 0.5 x 22 mm	4-366-AL	<b>①</b>	Watchmaker screwdriver cross-recess PH00
4-374-AL	$\begin{array}{c} \oplus \\ \oplus \\ \oplus \\ \end{array}$	Watchmaker screwdriver slot blade 2.5 x 0.4 x 22 mm	4-365-AL	<u> </u>	Watchmaker screwdriver cross-recess PH000

### ▶ Watchmaker screwdriver magazine 6 pcs.

Material tool steel HRC 58-61

Metal handle with rotating cap (nickel-plated), for opening with blades inside Weight: 33  $\rm g$ 

Art. No.	4-392	4-393
Slot 1,5 mm	<b>√</b>	<b>√</b>
Slot 2,0 mm	<b>V</b>	<b>✓</b>
Slot 2,5 mm	<b>V</b>	<b>✓</b>
Slot 3,0 mm	<b>V</b>	<b>✓</b>
Cross recess PH0	<b>V</b>	
Cross recess PH00		<b>✓</b>
Cross recess PH000		<b>/</b>



## MICRO SCREWDRIVER

Fine screwdrivers are also called micro screwdrivers and are used in precision mechanics for small screw sizes or miniature screws. The hard precision blade made of quality tool steel enables direct gripping of the miniature screw and provides optimum force closure. The sturdy plastic handle with rotation cap fits comfortably in the hand, the coloured ring facilitates work by quickly recognising the required size.

Blade (HRC 58-61) material molybdenum-vanadium steel, burnished black, handle plastic. 100% Made in Germany.

**Instructions:** High humidity or touching burnished blades with your fingers (sweat) causes flash rust. Therefore, the blades should always be kept dry or rubbed with a drop of oil for storage. If such rust forms on the blade, it can be easily removed, with a slight ground.

Blades are burnished to prevent the chrome from flaking off and to achieve absolute top dimensional stability.



4-380-14

The following types are available, specifications in mm:

ArtNo.	Symbol	Size / drive	Blade lenght	Blade width	Blade thickness	Blade diameter	Handle length	Total length	Weight in g
4-380-06	$\ominus$	Slot	17	0.6	0.15	2.0	87	104	4
4-380-08	$\ominus$	Slot	17	0.8	0.19	2.0	87	104	4
4-380-10	$\ominus$	Slot	17	1.0	0.20	2.0	87	104	4
4-380-12	$\ominus$	Slot	17	1.2	0.25	2.0	87	104	4
4-380-14	$\ominus$	Slot	17	1.4	0.25	2.0	87	104	4
4-380-18	$\ominus$	Slot	17	1.8	0.30	2.0	87	104	4
4-380-20	$\ominus$	Slot	17	2.0	0.40	2.0	87	104	4
4-380-23	$\ominus$	Slot	17	2.3	0.40	2.5	87	104	4
4-380-25	$\ominus$	Slot	17	2.5	0.40	2.5	87	104	4
4-380-30	$\ominus$	Slot	17	3.0	0.50	2.5	87	104	4
4-380-90	<b>⊕</b>	PH1	17	-	-	2.5	87	104	4
4-380-91	<b>①</b>	PH0	17	-	-	2.5	87	104	4
4-380-92	<b>⊕</b>	PH00	17	-	-	2.5	87	104	4
4-380-93	<b>⊕</b>	PH000	17	-	-	2.0	87	104	4
4-380-94	<b>⊕</b>	PH0000	17	-	-	2.0	87	104	4

## ▶ 4-380

## Micro screwdriver slot set 5 pcs

Box measures  $105 \times 65 \times 20$  mm, weight 64 g

ArtNo.	Content	Color
4-380-0	Plastic box blue	
4-380-10	Slot blade 1.0 x 0.20 x 17 mm	
4-380-14	Slot blade 1.4 x 0.25 x 17 mm	
4-380-18	Slot blade 1.8 x 0.30 x 17 mm	
4-380-23	Slot blade 2.3 x 0.40 x 17 mm	
4-380-30	Slot blade 3.0 x 0.50 x 17 mm	

## ▶ 4-380-A

## Micro screwdriver slot + PH set 5 pcs

Box measures 105 x 65 x 20 mm, weight 64 g

ArtNo.	Content	Color
4-380-0	Plastic box blue	
4-380-06	Slot blade 1.0 x 0.20 x 17 mm	
4-380-08	Slot blade 2.0 x 0.40 x 17 mm	$\circ$
4-380-10	Slot blade 3.0 x 0.50 x 17 mm	
4-380-12	Phillips Recess Blade PH00	
4-380-14	Phillips Recess Blade PH000	

## ▶ 4-380-F

## Micro screwdriver slot 0.6 - 1.4 set 5 pcs

Box measures  $105 \times 65 \times 20$  mm, weight 64 g

ArtNo.	Content	Color
4-380-0	Plastic box blue	
4-380-06	Slot blade 0.6 x 0.15 x 17 mm	
4-380-08	Slot blade 0.8 x 0.19 x 17 mm	
4-380-10	Slot blade 1.0 x 0.20 x 17 mm	
4-380-12	Slot blade 1.2 x 0.25 x 17 mm	
4-380-14	Slot blade 1.4 x 0.2 5 x17 mm	

## ▶ 4-380-G

## Micro screwdriver slot 1.8 - 3.0 set 5 pcs

Box measures 105 x 65 x 20 mm, weight 64 g

ArtNo.	Content	Color
4-380-0	Plastic box blue	_
4-380-06	Slot blade 1.8 x 0.23 x 17 mm	
4-380-08	Slot blade 2.0 x 0.40 x 17 mm	Q
4-380-10	Slot blade 2.3 x 0.40 x 17 mm	
4-380-12	Slot blade 2.5 x 0.40 x 17 mm	
4-380-14	Slot blade 3.0 x 0.50 x 17 mm	

## ▶ 4-380-PH

## Micro screwdriver PH set 5 pcs

Box measures  $105 \times 65 \times 20$  mm, weight 64 g

ArtNo.	Content	Color
4-380-0	Plastic box blue	
4-380-90	Phillips Recess Blade PH1	
4-380-91	Phillips Recess Blade PH0	
4-380-92	Phillips-Recess Blade PH00	
4-380-93	Phillips-Recess Blade PH000	$\bigcirc$
4-380-94	Phillips-Recess blade PH0000	





4-380





4-380-A





4-380-F





4-380-G





4-380-PH





## **WRENCH KEYS**

## ▶ Allen wrench keys hex (VE10)

Material tool steel, surface nickel-plated manufactured according to DIN ISO 2936 (DIN 911)

ArtNo.	Symbol	WAF inch	WAF	Leg Iength A	Leg length B	Weight g/pcs
6-812		_	1,0	32	10	0,2
6-813		_	1,5	45	14	1,0
6-814	•	5/64	2,0	50	16	2,0
6-815	•		2,5	56	18	3,0
6-816			3,0	63	20	5,0
6-817		9/64	3,5	66	22	7,0
6-818		5/32	4,0	70	25	10
6-819			4,5	75	26	13
6-821			5,0	80	28	18
6-822		7/32	5,5	85	30	24
6-823			6,0	90	32	30
6-825		9/32	7,0	95	34	43
6-826		5/16	8,0	100	36	60
6-827		11/32	9,0	105	38	76
6-828			10,0	112	40	103
6-851		3/64	1,2	40	12	0,4
6-852		1/16	1,59	45	14	1,0
6-854		3/32	2,38	56	18	3,0
6-855		1/8	3,18	63	20	5,0
6-858		3/16	4,76	80	28	16
6-861		1/4	6,35	90	32	30
6-865	•	3/8	9,53	112	40	103



## Wrench key set 8 pcs

Contents: 1.5 - 2.0 - 2.5 - 3.0 - 4.0 - 5.0 - 5.5 - 6.0 mm manufactured according to DIN ISO 2936 (DIN 911) Material tool steel nickel-plated, in plastic bag Weight: 90 g



## Ballpoint wrench key set 9 pcs

 $Contents: 1.5 - 2.0 - 2.5 - 3.0 - 4.0 - 5.0 - 6.0 - 8.0 - 10.0 \ mm$   $manufactured \ according \ to \ DIN \ ISO \ 2936 \ (DIN \ 911)$   $Material \ tool \ steel \ nickel-plated, \ in \ plastic \ holder$   $Weight: 380 \ g$ 



## TORX wrench key set with hole 8 pcs

Content: TORX T9 - T10 - T15 - T20 - T25 - T27 - T30 - T40 with hole manufactured according to DIN ISO 2936 (DIN 911)

Material tool steel burnished, in plastic bag

Weight: 120 g





6-820







6-995

## **SOCKET WRENCHES**

## ▶ 4-775

## Plastic spring handle for socket wrenches 6-200

Material orange transparent plastic, weight 30 g

## ♦ BERNSTEIN

#### ▶ 6-200

## Socket wrench 8 pcs

 $Inhalt\,siehe\,Artikelauflistung Tabelle$ 

Industrienorm, Klingenlänge 140 mm, lingen Ø 6 mm

Material Chrom-Vanadium-Molybdän Stahl HRC 56-58, vernickelt

inklusive 4-775 Kunststoff-Griff in praktischer Rolltasche, Gewicht 310 g

ArtNro	Symbol	Size / drive	Blade length	Blade diameter	Total length	Weight in g
6-201	0	4.0	140	6	140	30
6-202	0	5.5	140	6	140	35
6-203	0	6.0	140	6	140	35
6-204	0	7.0	140	6	140	40
6-205	0	8.0	140	6	140	40
6-206	0	9.0	140	6	140	43
6-207	0	10	140	6	140	45



## ▶ Adjustable spanners / adjustable wrenches

Material chrome vanadium molybdenum steel HRC 56-58, surface nickel-plated

ArtNo.	Span width	Jaw length	Total length	Weight in g
6-771	0 - 13	12	100	55
6-772	0 - 19	22	150	135



## ▶ 6-320

## Socket wrench set 36 pcs with ratchet + extension

Sheet steel case with foam inlay, content:

1/4 inch hex sockets 4.0 - 4.5 - 5.0 - 5.5 - 5.0 - 6.5 - 7.0 - 8.0 - 9.0 - 10 - 11 - 12 - 13

1/4 inch PH screwdriver PH1-PH2

1/4 inch screwdriver 4.0 - 4.5

1/4 inch Allen key 3.0 - 4.0 - 5.0 - 6.0

1/4 inch TX screwdriver TX20 - TX25 - TX27 - TX30

1/4 inch cardan joint

1/4 inch extension 50 and 100 mm

1/4 inch handle with slide

1/4 inch plug-in handle with square drive

1/4 inch lever ratchet 72 teeth 140 mm

Allen wrench 1.25 - 1.5 - 2.0 - 2.5 - 3.0

weight 1320 g



## **OPEN-END WRENCHES AND RING SPANNERS**

#### ▶ 6-750

## Special double open-end wrench set 6 pcs

small sizes for filigree work, very narrow for hard to reach places Open-end spanner size: 3.0 - 6.5 mm length 120 mm and material thickness 1.5 mm Open-end spanner size: 7.0 - 10 mm length 125 mm and material thickness 2.0 mm Material tool steel, surface nickel-plated in plastic roll bag, weight 100 g

#### Set consisting of:

6-750-3 open-end spanner  $3 \times 3.5$  mm 6-750-4 Open-end spanner  $4 \times 4.5$  mm 6-750-5 Open-end spanner  $5 \times 5.5$  mm 6-750-6 Open-end spanner  $6 \times 6.5$  mm 6-750-7 Open-end spanner  $7 \times 8$  mm 6-750-9 Open-end spanner  $9 \times 10$  mm



#### ▶ 6-750-13



#### ESD Special double open-end wrench set 6 pcs

same set as above with ESD coating dissipative between 10<sup>6</sup> and 10<sup>9</sup> Ohm weight 104 g

IMPORTANT: During use, put an ESD protective cap (included) on the free back side. That no leakage current can flow under the ESD coating.



#### ▶ 6-500

#### Double open-end wrench set 8 pcs

content: 6x7 - 8x9 - 10x11 - 12x13 - 14x15 - 16x17 - 18x19 - 20x22 mm Industrial quality according to DIN 3110

heads polished, material chrome-vanadium steel, surface chrome plated transparent packaging with a practical storage holder, weight 700 g



#### ▶ 6-600

#### Combination wrench set 12 pcs

content: 6-7-8-9-10-11-12-13-14-17-19-22 mm Industrial quality according to DIN 3113 heads polished, material chrome-vanadium steel, surface chrome plated, transparent packaging, with a practical storage holder, weight 850 g



## TERMS OF SALE AND DELIVERY

#### **GENERAL**

The nature and scope of delivery are specified in the order confirmation. The following delivery terms shall apply to all deliveries to be carried out by us. Purchasing conditions of the customer do not oblige us, even if we do not expressly contradict this. Verbal or by intercom agreements made require our written confirmation. Obvious mistakes in offers, order confirmations, etc. are expressly reserved and can be considered at any time. We are entitled to process any data relating to the business relationship or in connection with the same concerning buyers, whether the buyer itself or third parties, within the framework of the Federal Data Protection Act.

#### **OFFER**

Our offers are permissive, an order is deemed to be granted if confirmed by us in writing. PRICES, DELIVERY BASIS AND PACKAGING Unless otherwise agreed, the prices in Euros, ex works, are exclusive packaging. In the case of special packaging regulations of the customer, the additional costs involved are invoiced. Packaging is not accepted.

#### **DELIVERY**

The delivery takes place at the expense and risk of the buyer without regard to who bears the freight costs. We reserve the right to place orders in partial deliveries. For custom-made products, excess or short deliveries of up to 10% are permitted.

#### **DELIVERY TIME**

The delivery time begins upon receipt of all information required for the execution of the order. We endeavor to comply with the delivery time specified in the order confirmation. No claims of any kind can be asserted from a delayed delivery.

#### **COMPLAINTS**

Complaints can only be accepted within 8 days after receiving of the goods.

The shape and colour of the tool may differ from the item shown in the catalogue.

## GUARANTEE

For all BERNSTEIN tools, which are unusable due to proven material or manufacturing defects, we deliver within one year after deliver a replacement. This free replacement service is excluded if the tools have become unusable due to natural wear or improper handling.

#### **DISCLAIMER**

We do not assume any guarantee for the suitability of our products for the intended purpose of the customer. For damages caused by unsuitable or improper use, commissioning by the customer or third parties, and for the natural wear and tear we assume no guarantee. Any claims for damages, irrespective of the legal basis, as well as, in particular, the liability by tort (product liability) are excluded to the extent permitted by law.

#### **PAYMENT**

Our invoices are payable within 10 days of the invoice date with 2% discount or in 30 days net, unless otherwise agreed in the order confirmation.

#### RESERVATION OF TITLE

We reserve the title to all goods delivered by us until the buyer has paid all claims arising from the business relationship. The buyer is entitled to resell the reserved goods in ordinary business transactions. In the case of resale, the buyer has to reserve the ownership of the sold goods on the same terms as his customer. The purchaser hereby assigns to us the purchase price claim against the buyer from the resale.

#### **FULFILLMENT AND JURISDICTION**

Place of performance and jurisdiction for delivery and payment is Remscheid. In any case, only German law shall apply, with the exclusion of any foreign law.

#### **ONLINE DISPUTE RESOLUTION**

The European Commission provides a platform for online dispute resolutions (ODR) which can be accessed at

#### https://ec.europa.eu/consumers/odr/

In order to settle dispute arising from a contractual relationship with a consumer or from whether such a contractual relationship exists at all, we will participate in dispute settlement proceedings before a consumer dispute resolution body. Consumers can contact their national European Consumer Centre in this regard. The respective contact details of the individual ECCs can be found at

https://www.evz.de/en/alternative-dispute-resolution/adr-in-europe/.





A little story about the word amber (BERNSTEIN)

The greek word for amber is "elektron": the root of today's term electronics. Even the greeks discovered the special feature of amber: by rubbing the natural amber can be electrostatically charged. The charged stone can attract dust particles.

Today you can use this property to check the authenticity of an amber. If it is real, it can be tested through charge rubbing on a cotton cloth.

You can also wear it as jewellery: it should protect from evil magic and give joy of life.

Just like our high-quality BERNSTEIN ESD Tools - them protect against electrostatics and give joy with the daily work.

(Autor Max Walter Hartmut Blombach)

## **BERNSTEIN**

Werkzeugfabrik Steinrücke GmbH

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sales@bernstein-tools.de www.bernstein-tools.de





TWEEZERS – EVERYTHING IS UNDER CONTROL

Vers.01

#### **GET IN CONTACT WITH US**

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**VISIT US ON THE WEB** 

Product videos and blog posts round off our online offering. Furthermore, we also respect the traditional sales channel via specialist retailers and offer the option to present your webshop as an online sales platform for products by BERNSTEIN.

We update our product information on a regular basis and automatically using our Product Information System. This enables the quick

and up-to-date compilation of customer-speci-

fic data feeds for your own digital sale activities.

Take advantage of this service and always keep

Bernstein product information up to date!

## **SYMBOL LEGEND**



New product



Number of tools in sets



Weight



Dimensions



ESD protection (EPA suitable)



VDE tested







# TWEEZERS – EVERYTHING IS UNDER CONTROL

The requirements for tweezers could not be more varied. For this reason, we are continuously expanding our range of tweezers with useful models, either through new designs or technically sophisticated materials.

Our tweezers are suitable for work on statically sensitive electronics in EPAs, clean rooms, the dental sector or laboratories, as well as for jewellers, watchmakers or in the craft trade.

BERNSTEIN tweezers meet the highest demands in quality, wherever they are used.

Get in touch with us if you can't find what you're looking for in the following pages.

Together we'll find the right tweezers for you.

sales@bernstein-werkzeuge.de

1

## TWEEZERS -MATERIAL, SHAPE AND APPLICATION

#### TYPES AND APPLICATIONS

Our product selection ranges from microscope tweezers manufactured with exact tolerances (also recently available with ergonomically adapted, recessed grips) to interchangeable or cutting tips to all possible universal shapes and even locking tweezers.

Traditional tweezers are made from high-quality steel or stainless steel. We also manufacture tweezers made from titanium, ceramic, plastic and even bamboo.

The different surface finishes allow us to support a vast range of applications.

#### **Delicate**

SMD assembly requires the finest precision tweezers due to the increasingly smaller components. The variety of shapes and a parallel tip end enable reliable handling of components, even in confined spaces.

#### Ultra-fine

For precise gripping, holding and positioning work with a tip width of 0.2 mm at a tolerance of

#### Geometric

For easy removal and insertion of round or cubic components, every imaginable design is possible

#### Universal

Partially cut (small cross grooves on the tips) for better and stable gripping. They have precise, parallel tips and are used in the medical sector to remove foreign objects.

#### Wafer

For positioning flat and thin components, such as highly sensitive and fragile wafers (glass wafers, etc.), thin PCBs and LCDs.

Best suited for soft wires up to Ø 0.25 mm, for example, copper wire, gold wire and silver wire.

### Self-holding

Self-holding tweezers in different shapes are suitable for simple holding and positioning.

## Interchangeable tips

The tips are connected to the body by a screw joint, allowing them to be changed.



## MATERIALS, SURFACE AND PROPERTIES

#### Stainless steel (SA)

Anti-magnetic, corrosion-resistant, resistant to acids and chemicals, good conductivity, very hygienic, sterilisable, food-safe, recyclable

#### Titanium (TI)

Anti-magnetic, corrosion-resistant, resistant to acids and chemicals, antibacterial, good conductivity, glare-free, solder-repellent, heat-resistant (melting point is 1677°C)

#### Quality steel (FE)

Protected from corrosion with nickel plating, not anti-magnetic, not resistance to acid.

#### **ESD** coating

Provides a bleeder resistance of 10<sup>6</sup> -10<sup>9</sup> ohm

#### **VDE** dip-insulation

For working with voltages up to 1000 V, in accordance with DIN IEC 60900 / EN 60900

## Dip-insulated (red) or lacquered (red)

anti-allergic, non-slip, secure hold

## PTFE coating

Heat resistant up to 280 °C (536 °F), anti-allergic

## Bamboo (BA)

Tips are individually shapeable, nonconductive, partially chemical resistant, light in the hands

## ESD ceramic zirconia (ZC)

Dissipative 10<sup>6</sup> -10<sup>9</sup> ohms, extremely wear resistant, heat resistant up to 800°, acid and chemical resistant, solder-repellent

#### Plastic ESD (PA)

Conductive between 10<sup>3</sup> -10<sup>5</sup> ohms, glass-fibre reinforced plastic material, resistant to acids, heat-resistant to 175 °C, free from silicone and armin

#### Carbofib (CF)

Carbon-fibre reinforced plastic, conductive 10<sup>2</sup> -10<sup>3</sup> ohm

Universal plastic, fully insulating

## Plastic (PP)

Low-priced alternative, insulating, good chemical resistance, high thermal stability, light in the hands.

### Delrin (DEL)

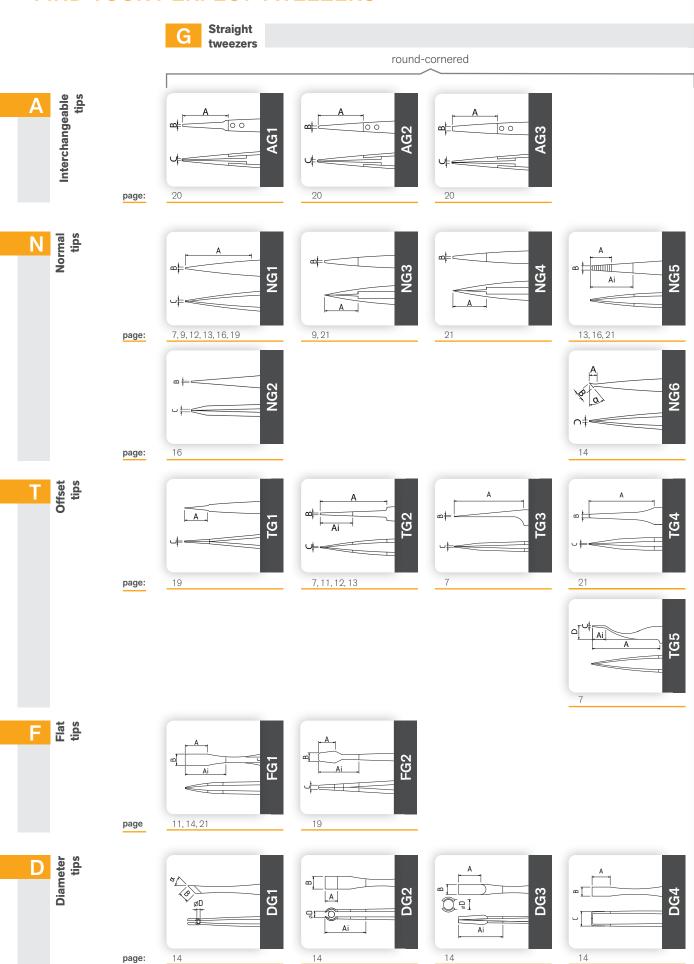
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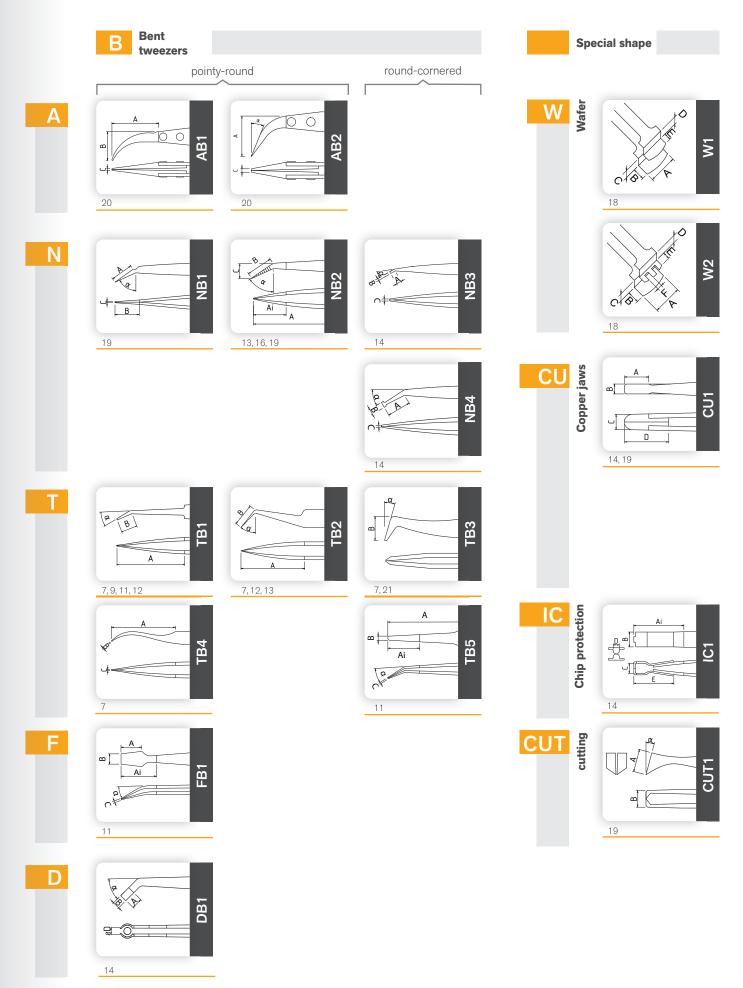
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SURFACES CHARACTERISTICS

**MATERIAL** 

## FIND YOUR PERFECT TWEEZERS





## **DELICATE TWEEZERS**



## **DELICATE TWEEZERS**

SMD assembly requires the finest precision tweezers due to the increasingly smaller components. The variety of shapes and a parallel tip end enable reliable handling of components, even in confined spaces. In the electronics manufacturing, antimagnetic, acid and corrosion-resistant stainless steel (SA) is preferred with a particularly high strength, making the fine tips incredibly hard and resistant. Titanium and plastic are also popular materials.

steel - non-reflective and matt-polished. The dissipative ESD coating provides a bleeder resistance of 106–109 ohm. Tweezers with ESD coating

Made from anti-magnetic, non-corrosive and acid-resistant stainless end with -13 in the article number.



The following types are available, specifications in mm:

ArtNo.	ArtNo.	lcon	Shape	А	В	С	D	Angle	Tolerance (or acc. ISO2768)	Total length	Weight in g
5-048	5-048-13	PTG2	5	30	0.3	0.4		'		110	12
5-049	5-049-13	PTG2	4	30	0.3	0.4				110	15
5-051	5-051-13	PTG2	2	35	0.4	0.8				120	15
5-052	5-052-13	PTB1	5b	30	7			30°		120	15
5-053	5-053-13	PTB2	5abb	35	7.4			30°		110	13
5-054	5-054-13	PTG5	7abb	38	0.4	7	9			120	15
5-055	5-055-13	PTB2	7a	35	10			50°		120	15
5-056	5-056-13	PTB4	7	40	0.4	0.4				120	15
5-088	5-088-13	PTG3	5a	35	0.2	0.4				115	18
5-069	5-069-13	PTB2	5abb-z	35	7.5			30°		115	15
5-089	5-089-13	PTB3	6		14.2			10°		115	17
5-852	5-852-13	PTB1	4b	27	7			40°		110	14
5-874	5-874-13	PNG1	3	45	0.2	0.2			0.1	120	14
5-878	5-878-13	PNG1	PSF-Z	50	1	0.5			0.2	130	19

## ▶ SMD tweezers set 6 pcs

Content: 5-051, 5-052, 5-054, 5-058, 5-061, 5-062

ArtNo.	Description	Weight in g
5-050	in a pocket (synthetic leather)	135
5-050-ES	wihtout a pocket (loosley packed)	90
5-050-V	with VARIO tool holder (5-090-1)	480



## ▶ ESD SMD tweezers set 6 pcs

Content: 5-049-13, 5-055-13, 5-059-13, 5-067-13, 5-068-13, 5-078-13

ArtNo.	Description	Weight in g
5-060	in a pocket (synthetic leather)	135
5-060-ES	wihtout a pocket (loosley packed)	90
5-060-ST	with plastic stand (5-180-0)	110



## **DELICATE TWEEZERS**



## **DELICATE TWEEZERS**

Made from anti-magnetic, non-corrosive and acid-resistant stainless steel – non-reflective and matt-polished. T he dissipative ESD coating provides a bleeder resistance of  $10^6$ – $10^9$  ohm. Tweezers with ESD coating end with -13 in the article number.

The following types are available, specifications in mm:

5-071         5-071-13         PNG1         OC         48         0.2         0.4         0.3           5-072         5-072-13         PNG1         3c         46         0.3         0.4         0.2           5-073         5-073-13         PNG1         SS         53         0.2         0.4         0.3           5-074         5-074-13         PNG1         1         42         0.3         0.4         0.2           5-075         5-075-13         PNG3         BB         8         0.2	85 110	8
5-073         5-073-13         PNG1         SS         53         0.2         0.4         0.3           5-074         5-074-13         PNG1         1         42         0.3         0.4         0.2           5-075         5-075-13         PNG3         BB         8         0.2         0.2           5-076         5-076-13         PNG1         00         46         0.5         1         0.4           5-077         5-077-13         PNG1         AA         50         0.3         0.6         0.3	110	- 44
5-074         5-074-13         PNG1         1         42         0.3         0.4         0.2           5-075         5-075-13         PNG3         BB         8         0.2		11
5-075         5-075-13         PNG3         BB         8         0.2           5-076         5-076-13         PNG1         00         46         0.5         1         0.4           5-077         5-077-13         PNG1         AA         50         0.3         0.6         0.3	140	13
5-076         5-076-13         PNG1         00         46         0.5         1         0.4           5-077         5-077-13         PNG1         AA         50         0.3         0.6         0.3	120	14
<b>5-077 5-077-13</b> PNG1 AA 50 0.3 0.6 0.3	140	13
	120	19
<b>5-078 5-078-13</b> PNG1 PSF 50 1 0.5 0.3	130	16
	130	20
<b>5-083 5-083-13</b> PNG1 MM 68 0.6 1 0.5	140	8
<b>5-085 5-085-13</b> PTB1 SSBB 20 4.5 30°	140	14
5-086 5-086-13 PNG1 H 12 0.2 0.4 0.4	90	12
<b>5-086-135</b> PNG1 H 12 0.5 1.9	90	12
<b>5-087 5-087-13</b> PNG1 AC 60 0.2 0.4 0.2	110	18

### **DELICATE TWEEZERS SETS**

#### ▶ SMD tweezers set 6 pcs

Content: 5-049, 5-053, 5-055, 5-059, 5-078, 5-089

ArtNo.	Description	Weight in g
5-050-A	in a pocket (synthetic leather)	135
5-050-ANY	in a pocket (nylon)	110
5-050-AES	wihtout a pocket (loosley packed)	90
5-050-AV	with VARIO tool holder (5-090-1)	480

#### ▶ ESD SMD tweezers set 6 pcs

Content: 5-071-13, 5-077-13, 5-191, 5-052-13, 5-861-13, 5-863-13

ArtNo.	Description	Weight in g
5-060-A	in a pocket (synthetic leather)	135
5-060-ANY	in a pocket (nylon)	110
5-060-AES	wihtout a pocket (loosley packed)	90
5-060-AV	with VARIO tool holder (5-090-0)	480

# ESD TWEEZERS WITH ESD DISSIPATIVE PVC DIP INSULATION (NON-SLIP)

ESD coating achieves a discharge resistance of  $10^6 - 10^9$  Ohm. PVC insulation enables optimal positioning due to slight adhesion to the tip.

A secure hold for small parts and components that slip away quickly, also suitable for securely holding glass lenses and optics.

Do you need a different shape with dissipative PVC insulation? Please do not hesitate to contact us.











Shape	Specification	Tips length	Tips width	Tips thickness	Angle/Inclined	Ø	Page
straight	with Ø-holder	2.3	1.5 - 3.0			0.8	14
straight	normal	2.5			40°		14
straight	with Ø-holder	5			45°	1.5	14
straight	with Ø-holder	5	4			3.5	14
straight	normal flat	5	6.35				21
straight	normal flat	6	4 - 5	2.6 - 3.8			9, 11
straight	normal flat	6	13	3			14
straight	with Ø-holder	6.5	6			5	14
straight	with Ø-holder	7	6			5	14
straight	normal	8	0.2				9
straight	normal flat	9.5	5	2.8			19
straight	with Ø-holder	10	3.1			2	14
straight	with Ø-holder	10	5.5 - 5.6			5	14
straight	with Ø-holder	10.5	5.8	8			14
straight	normal flat	10.5	5.9	5.5			19
straight	normal flat	20	4	4.5			11
straight	tapered	10		0.5			19
straight	normal	11	3.2				21
straight	normal	12	0.2	0.4			9
straight	copper jaws	11 - 12	4.6 - 6	5.6 - 7.2			14, 19
straight	normal	13	0.65 - 1.0				16, 21
straight	normal	14	3				21
straight	normal	16	2				16
straight	normal	17	1				16
straight	normal	18	3				13
straight	normal	18 Zahnung	3				16
straight	normal	18	4.5				16
straight	interchangeable tip	25	1.8				20
straight	interchangeable tip	26	0.6 - 1.5				20
straight	interchangeable tip	26	1.1 - 2.0				20
straight	interchangeable tip	30	0.7				20
straight	tapered	30	0.1 - 0.5	0.2 - 1.0			7,12
straight	tapered	35	0.2 - 2.25	0.2 - 1.0			7, 12, 13, 21
straight	tapered	36	2.3	0.4			9,11
straight	tapered	38	0.4	7			7
straight	normal	42	0.3	0.4			9
straight	normal	45	0.2	0.2			7
straight	normal	46	0.1 - 0.5	0.2 - 1.0			9,12
straight	normal	48	0.2 - 0.9	0.4 - 1.5			9, 13, 21
straight	normal	50	0.3 - 1.0	0.2 - 0.6			9,12
straight	normal	50	0.5 - 1.0	0.5 - 0.6			7, 16
straight	normal			1			13
straight	normal	54 60	0.6	0.4			9
straight		68	0.2	1			9
straight straight	normal normal	75	1.3	I			19
bent	with Ø-holder	2.3	1.5 - 3.0		35°	0.8	14
bent	normal	2.5	1.3 - 3.0		45°	0.0	14
bent	normal	6	6.5	0.7	30°		19
bent	normal flat	10	5	<u></u>	20°		9,11
bent	normal	10	8	0.5	30°		20
bent	normal	12	2.5	0.0	30°		14
bent	tapered	12			16°		21
bent	tapered	14.2			10°		7
bent	tapered	20	4.5		30°		9
bent	interchangeable tip	20		1.6	45°		20
bent	interchangeable tip	25	15	1			20
bent	tapered	27 - 38	7		40°		7,13
bent	tapered	30	7		30°		7, 11, 12
bent	tapered	34 - 35	14		30°		11
bent	tapered	35	2.3 - 2.6		30°		9, 11
bent	tapered	35	7.4 - 7.5		30°		7
bent	tapered	35	10		50°		7, 12
bent	tapered	40	0.4	0.4			7
bent	normal	45	16	12	60°		13, 16, 19

## **DELICATE TWEEZERS**

Made from anti-magnetic, non-corrosive and acid-resistant stainless steel – non-reflective and matt-polished. The dissipative ESD coating provides a bleeder resistance of  $10^6$ – $10^9$  ohm. Tweezers with ESD coating end with -13 in the article number.

ArtNo.	ArtNo.	lcon	Shape	Α	В	С	Ai	Angle	Total length	Weight in g
5-059	5-059-13	PTG2	2a	36	2.3	0.4			120	15
5-061	5-061-13	PTB1	2ab	35	14			30°	115	16
5-859	5-859-13	PTG2	F	36	2.3	0.4	12		125	17
	5-859-135	PTG2	F	36	2.6	1.9			125	16,5
5-861	5-861-13	PTB1	FB	34	14			30°	120	17
5-862	5-862-13	PTB5	2ac	35	2.3	0.5	12	30°	125	17
	5-862-135	PTB5	2ac	35	2.6	2.0		30°	125	16,5
5-863	5-863-13	PTB5	2acb	36	2.6			30°	125	17
5-864	5-864-13	PFB1	46d	10	5		13	20°	105	14
	5-864-135	PFB1	46d	10	5.4	2.1		20°	105	14
5-865	5-865-13	PFG2	26	6	4	2.6	13		120	17
	5-865-135	PFG2	26	7	4.6	3.3			120	17,5
5-866	5-866-13	PFG2	43	20	4	4.5			120	17
5-867	5-867-13	PFG2	35a	6	5	3.8			120	17



## **ULTRA FINE TIPPING TWEEZERS**



#### ▶ ULTRA FINE tipping tweezers

For precise gripping, holding and positioning work in laboratories, test facilities and, above all, under the microscope. Featuring a tip width of 0.2 mm at a tolerance of  $\pm$ 0.05, even robots can be equipped with them (pick-and-place), enabling a configuration with high repetition accuracy.

Made from anti-magnetic, non-corrosive and acid-resistant stainless steel – non-reflective and matt-polished. The dissipative ESD coating provides a bleeder resistance of  $10^6$ – $10^9$  ohm. Tweezers with ESD coating end with –13 in the article number.

ArtNo.	ArtNo.	lcon	Shape	А	В	С	Angle	Tolerance	Total length	Weight in g
5-049-UF	5-049-UF-13	PTG2	4	30	0.1	0.2		0.05	110	15
5-051-UF	5-051-UF-13	PTG2	2	35	0.4	0.2		0.05	120	15
5-052-UF	5-052-UF-13	PTB1	5b	30	7		30°	0.05	110	15
5-055-UF	5-055-UF-13	PTB2	7a	35	10		50°	0.05	120	15
5-072-UF	5-072-UF-13	PNG1	3c	46	0.1	0.2		0.05	110	11
5-078-UF	5-078-UF-13	PNG1	PSF	50	1	0.2		0.05	130	20



## **ULTRA FINE TIPPING TWEEZERS SETS**

#### ▶ 5-070-UF

#### SMD tweezers set ULTRA FINE 6 pcs

in a pocket (synthetic leather) Content: 5-049-UF, 5-051-UF, 5-052-UF, 5-055-UF, 5-072-UF, 5-078-UF

Weight: 150 g

#### ▶ 5-070-UF-13

#### ESD SMD tweezers set ULTRA FINE 6 pcs

in a pocket (synthetic leather)
Content: 5-049-UF-13, 5-051-UF-13, 5-052-UF-13, 5-055-UF-13, 5-072-UF-13, 5-078-UF-13
Weight: 150 g





5-070-UF

5-070-UF-!3

## **TITANIUM TWEEZERS**



#### ▶ TITANIUM tweezers

Tweezers made of titanium material are antimagnetic, corrosion-resistant, acid- and chemical resistant, antibacterial, highly conductive, glare-free, solder repellent, heat resistant (melting point at 1677° C), matt polished

The following types are available, specifications in mm:

ArtNo.	Icon	Shape	А	В	С	Angle	lolerance (or acc. ISO2768)	Total length	Weight in g
5-031	PTG2	5	35	0.5	1			110	9
5-035	PNG1	3	48	0.9	1.5		0.6	120	9
5-036	PNG5	40	18	2.5				145	15
5-037	PNB2	22b	45	18	12	60°		150	12
5-051-Ti	PTG2	2	35	0.2	0.6			125	10
5-055-Ti	PTB2	7a	38	14		40°		125	10
5-059-Ti	PTG2	2a	35	2.25	1			125	10
5-078-Ti	PNG1	PSF	54	0.6	1		0.5	130	10

#### ▶ 5-030

#### TITAN tweezers set 3 pcs

in a pocket (synthetic leather) Content: 5-031, 5-036, 5-037 Weight: 70 g

#### ▶ 5-030-A

#### TITAN tweezers set 3 pcs.

in a pocket (synthetic leather) Content: 5-051-Ti, 5-055-Ti, 5-059-Ti Weight: 55 g













5-030

## **GEOMETRIC TWEEZERS**

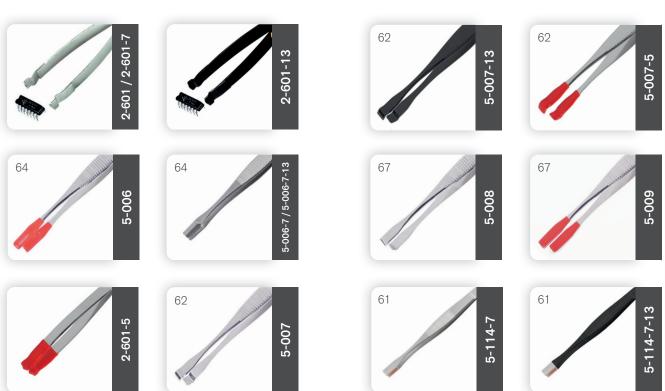
Every imaginable shape is possible. Bulbous or long, hollow tweezers with the appropriate diameter are suitable for the easy removal or insertion of round or cubic component parts. PVC dip-insulation on the tips protect sensitive parts made from plastic or glass such as laser optics or other opto-mechanical components.

Made from quality steel (nickel-plated, not anti-magnetic) or made from Stainless steel (anti-magnetic, non-corrosive and acid-resistant, non-reflective and matt-polished). The dissipative ESD coating provides a bleeder resistance of 10<sup>6</sup>-10<sup>9</sup> ohms. Tweezers with ESD coating end with -13 in the article number.

#### Additional models with dissipative ESD coating on request.

ArtNo.	ArtNo.	Icon	Shape	А	В	С	D	Е	Ai	Angle	Ø	Material	Total length	Weight in g
2-601	2-601-13	PIC1	-		8.2	6	3.2		20			steel nickel-plated	125	21
2-601-5		PIC1			9	8.5	4.7		26.5			steel nickel-plated*	125	21
2-601-7		PIC1	-		8.2	7	3.2		20			stainless steel	125	21
5-006		PDG3	64	14	5.6				25		5	steel nickel-plated	125	21
5-006-7	5-006-7-13	PDG3	64	13.5	5.8						5	stainless steel	125	23
5-007	5-007-13	PDG2	62	6.5	6				21		5	steel nickel-plated*	145	23
5-007-5		PDG2	62	7	6.2				21		5	steel nickel-plated	145	22
5-008		PDG4	67	11.5	5.9	8						steel nickel-plated	145	22
5-009		PFG2	68	13	6	3			25			steel nickel-plated*	145	25
5-013-7	5-013-7-13	PDG1	63		5			16		45°	1.5	stainless steel	125	15
5-014-7	5-014-7-13	PDG2	52	5	4				14		3.5	stainless steel	120	15
5-015-7	5-015-7-13	PDG2	53	8.8	3.5				14		6.5	stainless steel	120	15
5-016-7	5-016-7-13	PDG3	55	10.5	3.1						2	stainless steel	125	15
5-062	5-062-13	PDB1	59	2.3	1.5					35°	0.8	stainless steel	115	16
5-063	5-063-13	PDB1	58	2.3	3					35°	0.8	stainless steel	115	16
5-064	5-064-13	PDG2	54	2.3	1.5						0.8	stainless steel	120	16
5-065	5-065-13	PDG2	50	2.3	3						0.8	stainless steel	120	16
5-066	5-066-13	PNB4	8b	12	2.5					30°		stainless steel	120	15
5-067	5-067-13	PNB3	12	2.5	1					45°		stainless steel	120	15
5-068	5-068-13	PNG6	13		2.5					40°		stainless steel	120	13
5-114-7	5-114-7-13	PCU1	61	13	6	5.5					11	stainless steel	145	23

\*tips PVC insulated



5-062-13

5-063-13

5-064-13

WITH ESD COATING

58

54

## **GEOMETRIC TWEEZERS**

STAINLESS STEEL

63

2-E10-5

















STAINLESS STEEL

58





## **SETS**

#### ▶ 5-130

#### Geometric tweezers set 3 pcs

in a pocket (synthetic leather)

Content: 5-066-13, 5-067-13, 5-068-13

Weight: 90 g



#### Geometric tweezers set 3 pcs

in a pocket (synthetic leather)
Content: 5-013-7-13, 5-014-7-13, 5-062-13
Weight: 95 g













## **UNIVERSAL TWEEZERS**

Anatomic tweezers are somewhat larger due to their main body and are partially cut (small cross grooves on the tips) for better and stable gripping. They have precise, parallel tips and are used in the medical sector to remove foreign objects. Bent, slightly angled models provide support for work in the laboratory with ergonomic positioning for high grip repetition.

Made from quality steel (nickel-plated, not anti-magnetic) or made from Stainless steel (anti-magnetic, non-corrosive and acid-resistant, non-reflective and matt-polished). The dissipative ESD coating provides a bleeder resistance of  $10^6$ – $10^9$  ohms. Tweezers with ESD coating end with -13 in the article number.

#### Additional models with dissipative ESD coating on request.

The following types are available, specifications in mm:

ArtNo.	ArtNo.	Icon	Shape	А	В	С	Ai	Angle	Material	Total length	Weight in g
5-106-7	5-106-7-13	PNG5	48	16	1				stainless steel	155	20
5-107		PNB2	22b	45	18	10	16	60°	steel nickel-plated	150	20
5-107-1		PNB2	22b	45	18	10	16	60°	steel lacquered	150	23
5-107-6		PNB2	22b		18	10	16	60°	steel PVC coated	150	27
5-107-7	5-107-7-13	PNB2	22b	45	18	10	16	60°	stainless steel	155	28
5-107-9		PNB2	22b	45	18	10	16	60°	steel PTFE	150	22
5-117		PNG5	40	16	3				steel nickel-plated	145	25
5-117-1		PNG5	40	16	3		19		steel lacquered	145	26
5-117-5		PNG5	40		4.5		22		steel nickel-plated	145	27
5-117-6		PNG5	40	16	3		15		steel PVC coated	145	31
5-117-7	5-117-7-13	PNG5	40	16	3				stainless steel	145	20
5-117-9		PNG5	40	16	3				steel PTFE coated	145	29
5-119		PNG5	40-z	16	2				steel nickel-plated	140	19
5-121		PNG5	16	13	1				steel nickel-plated	120	14
5-121-1		PNG5	16	13	1		14		steel lacquered	120	14
5-121-6		PNG5	16	13	1		19		steel PVC coated	120	17
5-121-7	5-121-7-13	PNG5	16	13	1				stainless steel	120	14
5-121-9		PNG5	16	13	1				steel PTFE coated 120		13
5-125		PNG1	НН	75	1.3	2.2			steel nickel-plated 110		12

ArtNo.	ArtNo.	Icon	Shape	А	В	С	Ai	Angle	Туре	Material	Total length	Weight in g
5-107 VDE	mechanic tweezers	PNB2	22b		18	11	16	45°	VDE protective insulation according to VDE standard angled, fine tips, serrated	steel PVC dip-insulated	150	37
5-117 VDE	mechanic tweezers	PNG5	40	16	3		19		VDE protective insulation according to VDE standard straight, rounded tip, serrated	steel PVC dip-insulated	145	39
5-020	bamboo tweezers	PNG2	AA		0.6	1.5			long slim shape, pointed, individually shapeable, non conductive, non magnetic, partly chemical resistant	bamboo	150	4

#### ▶ 5-100

#### Universal tweezers set 12 pcs

in a pocket (synthetic leather)
Content: 2-126, 2-127, 2-601, 5-006, 5-107, 5-107-6, 5-117, 5-117-6, 5-121, 5-078, 5-156
Weight: 360 g



#### ▶ 5-110

#### Universal tweezers set 3 pcs.

in a pocket (synthetic leather), anatomical and cross tweezers Content: 5-107, 5-121, 5-155 Weight: 95 g

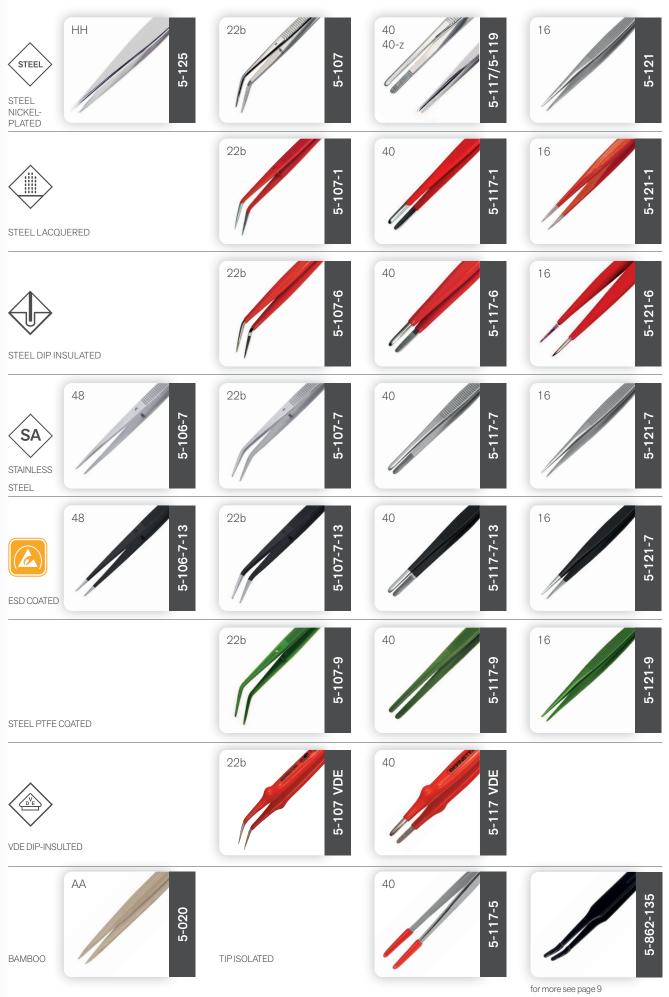


#### ▶ 5-030-PTFE

#### PTFE tweezers set 3 pcs

(without bag), Anatomical and cross Steeltweezers Content: 5-107-9, 5-117-9, 5-155-9 Weight: 80 g





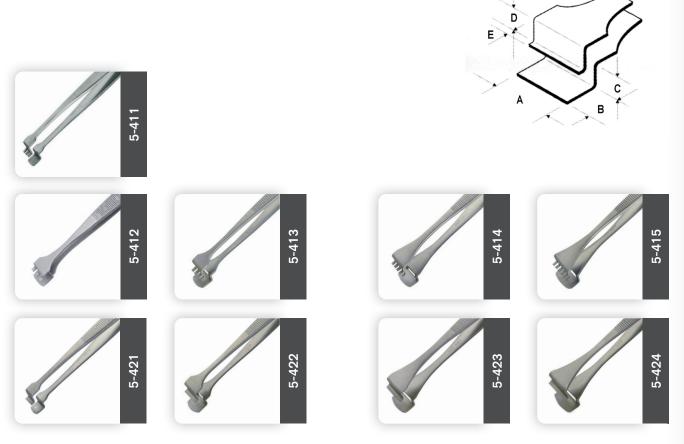
## **WAFER TWEEZERS**

For positioning flat and thin components, such as highly sensitive and fragile wafers (glass wafers, etc.), thin PCBs and LCDs.

Made from anti-magnetic, non-corrosive and acid-resistant stainless steel – non-reflective and matt-polished. The dissipative ESD coating provides a bleeder resistance of  $10^6$ – $10^9$  ohms. Tweezers with ESD coating end with –13 in the article number.



ArtNo.	ArtNo.	Icon	Туре	А	В	С	D	Е	F	for Wafer in inch	Total length	Weight in g
5-411	5-411-13	PW2	3 teeth, slim	6.2	5.1	3.5	3.7	2.9	1	2	130	14
5-412	5-412-13	PW2	3 teeth	9.8	8.2	4	4	4.2	1.8	2	130	14
5-413	5-413-13	PW2	4 teeth	12.5	7.6	3.5	3.9	4.8		3	130	17
5-414	5-414-13	PW2	5 teeth	16.5	7.7	3	3.8	4	1.8	4-5	130	20
5-415	5-415-13	PW2	6 teeth	20.2	7.9	3	3.9	3.8	1.8	6	130	20
5-421	5-421-13	PW1	without teeth	6	6.5	3.6	4	3		2	130	14
5-422	5-422-13	PW1	without teeth	12.3	8.4	4	3.6	5.4		3	130	17
5-423	5-423-13	PW1	without teeth	16.4	7.4	2.8	3.4	4		4-5	130	20
5-424	5-424-13	PW1	without teeth	20.2	7.3	3.2	4.3	3.2		6	130	20



## **CUTTING TWEEZERS**





Made from high-quality carbon steel (INOX).

CARE INSTRUCTIONS: Carbon steel rusts in high humidity or if touched with fingers (sweat). For this reason, tweezers should always be kept dry or rubbed with oil if stored for longer periods.

If a film of rust still shapes on the tweezers or blades, it can be easily removed by lightly sanding the affected area.

The dissipative ESD coating provides a bleeder resistance of 10<sup>6</sup>–10<sup>9</sup> ohms. Tweezers with ESD coating end with -13 in the article number.

The following types are available, specifications in mm:

ArtNo.	ArtNo. lcon	Shape	Туре	А	В	Angle	Material	length	in g
5-079	5-079-13 PCUT1	15 AWG	for oblique cutting	10	8	20°	Carbon steel	115	25
5-879	<b>5-879-13</b> PCUT1	15 AP	for flush cutting	10	8.5	20°	Carbon steel	115	25





## SELF-HOLDING TWEEZERS, CROSS TWEEZERS

Made from quality steel (nickel-plated, not anti-magnetic) or made from Stainless steel (anti-magnetic, non-corrosive and acid-resistant, non-reflective and matt-polished). Dissipative ESD coating available on request. Tweezers with ESD coating end with -13 in the article number.

ArtNo.	ArtNo.	Icon	Shape	А	В	С	D	Ai	Angle	Material	Total length	Weight in g
5-057	5-057-13	PTG1	53	10		0.5				stainless-steel	120	13
5-058	5-058-13	PNB1	53c	10	8	0.5			30°	stainless-steel	120	13
5-857	5-857-13	PNG1	31	48	0.4	0.8				stainless-steel	125	15
5-858	5-858-13	PNB1	31c	6	6.5	0.7			30°	stainless-steel	125	15
5-115		PCU1	R30	12	4	7.2	19.5			steel nickel-plated	165	35
5-155		PFG3	R30	9.5	5	3				steel nickel-plated	160	35
5-155-1		PFG3	R30	9.5	5	2.8				steel lacquered	160	40
5-155-5		PFG3	R30	10.5	5.9	5.5		19		steel nickel-plated	160	35
5-155-9		PFG3	R30	9.5	5	2.8				steel PTFE	160	40
5-156		PNB2	R29b	45		10		16	60°	steel nickel-plated	160	29
5-156-7		PNB2	R29b	45		10		16	60°	stainless-steel	160	29
5-157-7		PNG1	R29b		1.3					stainless-steel	160	29

















Total

Weight

## **CHANGEABLE TIPS TWEEZERS**

The body of the tweezers is made from anti-magnetic, non-corrosive and acid-resistant stainless steel – non-reflective and matt-polished

#### Carbofib tips

Carbon-fibre reinforced plastic, electrically conductive  $10^2-10^3$  ohms, scratch-proof, fully elastic, fatigue-resistant, vibration-dampening, water-repellent, resistant to most acids, alkalis and solvents.

The following types are available, specifications in mm:



ArtNo.	Short description	Icon	Shape	Α	В	С	Angle	Material	length	in g
5-431	ESD tweezers with changeabel tips	PAG1	70 CV	26	1.5			stainless steel / Carbofib	125	17
5-431-0	ESD replacement tips for 5-431 (pair)	PAG1	70 CV					Carbofib	42	2
5-432	ESD tweezers with changeabel tips	PAG3	72 CV	26	2			stainless steel / Carbofib	125	17
5-432-0	ESD replacement tips for 5-432 (pair)	PAG3	72 CV					Carbofib	42	2
5-433	ESD tweezers with changeabel tips	PAG3	74 CV	26	1.2			stainless steel / Carbofib	125	17
5-433-0	ESD replacement tips for 5-433 (pair)	PAG3	74 CV					Carbofib		2
5-434	ESD tweezers with changeabel tips	PAG1	76 CV	26	0.6			stainless steel / Carbofib	125	17
5-434-0	ESD replacement tips for 5-434 (pair)	PAG1	-					Carbofib	42	2
5-436	ESD tweezers with changeabel tips	PAB1	82 CV	25	15	1		stainless steel / Carbofib	125	18
5-436-0	ESD replacement tips for 5-436 (pair)	PAB1	-					Carbofib	42	2
5-437	ESD tweezers with changeabel tips	PAB2	84 CV	20		1.6	45°	stainless steel / Carbofib	125	18
5-437-0	ESD replacement tips for 5-437 (pair)	PAB2	-					Carbofib	42	2

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#### **Delrin tips**

Universal plastic, fully insulating for 10<sup>13</sup> and 10<sup>15</sup> ohms, excellent technical properties, low frictional resistance, good abrasion resistance, excellent spring power, high fatigue strength, high dielectric strength, low dielectric dissipation factor, good chemical resistance, particularly to solvents, very resistant to stress crack shapeation.

#### Ceramic tips

Conductive between 10<sup>6</sup> and 10<sup>9</sup> ohms, highly wear-resistant ceramic (zirconium), excellent mechanical and thermal properties, heat-resistant up to 800 °C, solder-repellent, coefficient of thermal expansion 10x10-6 K-1, thermal conductivity 2 W/mK, resistant to acids and solvents.

ArtNo.	Short description	lcon	Shape	А	В	Material	lotal length	Weight in g
5-441	Delrin tweezers	PAG1	70 DV	26	1.4	stainless steel / Delrin	125	17
5-441-0	Delrin replacement tips for 5-441 (pair)	PAG1	-			Delrin	42	2
5-443	Delrin tweezers	PAG3	74 DV	26	1.1	stainless steel / Delrin	125	17
5-443-0	Delrin replacement tips for 5-443 (pair)	PAG3	-			Delrin	42	2
5-452	ESD ceramic tweezers	PAG3	2 AZJ	25	1.8	stainless steel / Zirconia	125	17
5-452-0	ESD ceramic replacement tips for 5-452 (pair)	PAG3	-			Zirconia	42	2
5-454	ESD ceramic tweezers	PAG2	71 ZJ	30	0.7	stainless steel / Zirconia	125	17
5-454-0	ESD ceramic replacement tips for 5-454 (pair)	PAG2	-			Zirconia	42	2





















## **PLASTIC TWEEZERS**

ESD tweezers made of conductive, black, glass fibre reinforced plastic material (Vestamid) which is antimagnetic, resistant to acids, usable at temperatures up to  $175\,^{\circ}\text{C}$  and free of silicone and Armin.

The precisely matched tip closure allows components to be held optimally at a constant pressure.

Conductive between 10<sup>3</sup> and 10<sup>5</sup> ohm.



ArtNo.	Short description	Icon	Shape	Α	В	С	Angle	Material	length	in g
5-191	ESD plastic precision tweezers	PTG4	2a	35	2	0.6		PA	120	5
5-192	ESD plastic precision tweezers	PNG4	F	11.2	3.2			PA	120	5
5-193	ESD plastic precision tweezers	PFG2	35	5	6.35	1		PA	120	5
5-194	ESD plastic precision tweezers	PTB3	6		12		16°	PA	120	5
5-195	ESD plastic precision tweezers	PNG3	BB	13	0.65			PA	120	5
05-0030	plastic tweezers	PNG5	-	14	3			PP	130	6













### **ESD TWEEZERS SETS WITH HOLDER**



#### ▶ 5-090-V



#### ESD plastic precision tweezers set VARIO 5 pcs

Content: 5-090-0 ESD tool holder VARIO

5-191 ESD plastic tweezers 120 mm, shape 2a, tips 2 mm wide

5-192 ESD plastic tweezers 120 mm, shape F, tips 3 mm wide

5-193 ESD plastic tweezers 120 mm, shape 35, tips 6 mm wide

5-194 ESD plastic tweezers 120 mm, shape 6, hook tip

5-195 ESD plastic tweezers 120 mm, shape BB, very fine tips

Conductive tweezers 10<sup>3</sup> - 10<sup>5</sup> Ohm

Tweezers material Vestamid PA12 L-Polyamid 12 (clean room usable) Holder steel, ESD powder coated RAL9005, dissipative  $10^5$  -  $10^9$  Ohm Weight: 390 g



#### ▶ 5-190-V



#### ESD plastic precision tweezers set VARIO 6 pcs

Content: 5-090-0 ESD tool holder VARIO

5-191 ESD plastic tweezers 120 mm, shape 2a, tips 2 mm wide

5-192 ESD plastic tweezers 120 mm, shape F, tips 3 mm wide

 $5\text{--}193\,ESD$  plastic tweezers 120 mm, shape 35, tips 6 mm wide

5-194 ESD plastic tweezers 120 mm, shape 6, hook tip

 $5\text{-}195\,\text{ESD}$  plastic tweezers 120 mm, shape BB, very fine tips

 $5\text{-}454\,\text{ESD}$  changeable ceramic tweezers tips 0.7 width Conductive tweezers  $10^3$  -  $10^5$  Ohm, 5-454 dissipative  $10^6$  -  $10^9$  Tweezers material Vestamid PA12 L-Polyamid 12 (clean room usable) Holder steel, ESD powder coated RAL9005, dissipative  $10^5$  -  $10^9$  Ohm Weight:  $390\,\text{g}$ 



#### **5-180**



#### ESD plastic precision tweezers set 5 pcs

Content: 5-180-0-ST ESD tool holder ZEE

Weight: 216 g

5-191 ESD plastic tweezers 120 mm, shape 2a, tips 2 mm wide

5-192 ESD plastic tweezers 120 mm, shape F, tips 3 mm wide

5-193 ESD plastic tweezers 120 mm, shape 35, tips 6 mm wide

5-194 ESD plastic tweezers 120 mm, shape 6, hook tip

 $5\text{--}195\,\text{ESD}$  plastic tweezers 120 mm, shape BB, very fine tips Conductive tweezers 10 $^{\rm 3}$  -  $10^{\rm 5}\,\text{Ohm}$ 

Tweezers material Vestamid PA12 L-Polyamid 12 (clean room usable) Holder steel, ESD powder coated RAL7035, conductive 10<sup>4</sup> - 10<sup>5</sup> Ohm



#### ▶ 5-170-0



#### **ESD** tweezers holder TWEEZ

made of steel, ESD powder coated RAL7035 conductive  $10^4$  -  $10^5$  Ohm storage of up to 11 tweezers or other suitable tools clearly arranged and ready to hand at any time for standing or hanging Weight: 170 g



approx. 125 x 40 x 50 mm (dimensions for orientation)



#### ▶ 5-170



#### ESD SMD tweezers set 11 pcs

Content: 5-170-0 ESD tweezers holder TWEEZ

5-048-13 ESD tweezers 110 mm, shape 5, very pointed

5-055-13 ESD tweezers 120 mm, shape 7a, angle  $40^\circ$ 

5-059-13 ESD tweezers 120 mm, shape 2a

5-066-13 ESD tweezers 120 mm, shape 8b, angle 30°

5-067-13 ESD tweezers 120 mm, shape 12, angle  $45^\circ$ 

5-068-13 ESD tweezers 120 mm, shape 13, angle 45°

5-069-13 ESD tweezers 115 mm, shape 5abb-Z, angle 30°, serrated

5-079-13 ESD Schneidpinzette (schräg) 115 mm, shape 15, AGW

5-191 ESD plastic tweezers 120 mm, shape 2a, tips 2 mm wide

 $5\text{--}192\,ESD$  plastic tweezers 120 mm, shape F, tips 3 mm wide

5-194 ESD plastic tweezers 120 mm, shape 6, Hakenspitze

Conductive plastic tweezers 10<sup>3</sup> - 10<sup>5</sup> Ohm

Tweezers material Vestamid PA12 L-Polyamid 12 (clean room usable)

Dissipative steel tweezers 10<sup>6</sup> - 10<sup>9</sup> Ohm

Tweezers material stainless steel, ESD powder coated RAL9005 Holder steel, ESD powder coated RAL7035, conductive 10<sup>4</sup> - 10<sup>5</sup> Ohm Weight: 530 g



#### ▶ 5-170-G



#### ESD SMD tweezers set geometrisch 11 pcs

Content: 5-170-0 ESD tweezer holder TWEEZ

5-048-13 ESD tweezers 110 mm, shape 5, very pointed

5-055-13 ESD tweezers 120 mm, shape 7a, angle 40°

5-059-13 ESD tweezers 120 mm, shape 2a

5-062-13 ESD tweezers, 115 mm, shape 59, angle 35°

5-063-13 ESD tweezers, 115 mm, shape 58, angle 35  $^{\circ}$ 

5-064-13 ESD tweezers, 120 mm, shape 54

5-065-13 ESD tweezers, 120 mm, shape 50

5-066-13 ESD tweezers 120 mm, shape 8b, angle 30°

5-067-13 ESD tweezers 120 mm, shape 12, angle 45°

5-068-13 ESD tweezers 120 mm, shape 13, angle 45°

5-069-13 ESD tweezers 115 mm, shape 5abb-Z, angle 30°, serrated

Dissipative tweezers 10<sup>6</sup> - 10<sup>9</sup> Ohm

Tweezers material stainless steel, ESD powder coated RAL9005 Holder steel, ESD powder coated RAL7035, conductive  $10^4$  -  $10^5$  Ohm Weight: 530 g



### TERMS OF SALE AND DELIVERY

#### **GENERAL**

The nature and scope of delivery are specified in the order confirmation. The following delivery terms shall apply to all deliveries to be carried out by us. Purchasing conditions of the customer do not oblige us, even if we do not expressly contradict this. Verbal or by intercom agreements made require our written confirmation. Obvious mistakes in offers, order confirmations, etc. are expressly reserved and can be considered at any time. We are entitled to process any data relating to the business relationship or in connection with the same concerning buyers, whether the buyer itself or third parties, within the framework of the Federal Data Protection Act.

#### **OFFER**

Our offers are permissive, an order is deemed to be granted if confirmed by us in writing. PRICES, DELIVERY BASIS AND PACKAGING Unless otherwise agreed, the prices in Euros, ex works, are exclusive packaging. In the case of special packaging regulations of the customer, the additional costs involved are invoiced. Packaging is not accepted.

#### **DELIVERY**

The delivery takes place at the expense and risk of the buyer without regard to who bears the freight costs. We reserve the right to place orders in partial deliveries. For custom-made products, excess or short deliveries of up to 10% are permitted.

#### **DELIVERY TIME**

The delivery time begins upon receipt of all information required for the execution of the order. We endeavor to comply with the delivery time specified in the order confirmation. No claims of any kind can be asserted from a delayed delivery.

#### **COMPLAINTS**

Complaints can only be accepted within 8 days after receiving of the goods.

The shape and colour of the tool may differ from the item shown in the catalogue.

#### GUARANTEE

For all BERNSTEIN tools, which are unusable due to proven material or manufacturing defects, we deliver within one year after deliver a replacement. This free replacement service is excluded if the tools have become unusable due to natural wear or improper handling.

#### **DISCLAIMER**

We do not assume any guarantee for the suitability of our products for the intended purpose of the customer. For damages caused by unsuitable or improper use, commissioning by the customer or third parties, and for the natural wear and tear we assume no guarantee. Any claims for damages, irrespective of the legal basis, as well as, in particular, the liability by tort (product liability) are excluded to the extent permitted by law.

#### **PAYMENT**

Our invoices are payable within 10 days of the invoice date with 2% discount or in 30 days net, unless otherwise agreed in the order confirmation.

#### RESERVATION OF TITLE

We reserve the title to all goods delivered by us until the buyer has paid all claims arising from the business relationship. The buyer is entitled to resell the reserved goods in ordinary business transactions. In the case of resale, the buyer has to reserve the ownership of the sold goods on the same terms as his customer. The purchaser hereby assigns to us the purchase price claim against the buyer from the resale.

#### **FULFILLMENT AND JURISDICTION**

Place of performance and jurisdiction for delivery and payment is Remscheid. In any case, only German law shall apply, with the exclusion of any foreign law.

#### **ONLINE DISPUTE RESOLUTION**

The European Commission provides a platform for online dispute resolutions (ODR) which can be accessed at

#### https://ec.europa.eu/consumers/odr/

In order to settle dispute arising from a contractual relationship with a consumer or from whether such a contractual relationship exists at all, we will participate in dispute settlement proceedings before a consumer dispute resolution body. Consumers can contact their national European Consumer Centre in this regard. The respective contact details of the individual ECCs can be found at

https://www.evz.de/en/alternative-dispute-resolution/adr-in-europe/.





A little story about the word amber (BERNSTEIN)

The greek word for amber is "elektron": the root of today's term electronics. Even the greeks discovered the special feature of amber: by rubbing the natural amber can be electrostatically charged. The charged stone can attract dust particles.

Today you can use this property to check the authenticity of an amber. If it is real, it can be tested through charge rubbing on a cotton cloth.

You can also wear it as jewellery: it should protect from evil magic and give joy of life.

Just like our high-quality BERNSTEIN ESD Tools - them protect against electrostatics and give joy with the daily work.

(Autor Max Walter Hartmut Blombach)

#### **BERNSTEIN**

Werkzeugfabrik Steinrücke GmbH

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PLIERS – THEY PERFORM WELL!

Vers.01

#### **GET IN CONTACT WITH US**

#### **BERNSTEIN**

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**VISIT US ON THE WEB** 

Product videos and blog posts round off our online offering. Furthermore, we also respect the traditional sales channel via specialist retailers and offer the option to present your webshop as an online sales platform for products by BERNSTEIN.

We update our product information on a regular basis and automatically using our Product Information System. This enables the quick

and up-to-date compilation of customer-speci-

fic data feeds for your own digital sale activities.

Take advantage of this service and always keep

Bernstein product information up to date!

### **SYMBOL LEGEND**



New product



Number of tools in sets



Weight



Dimensions



ESD protection (EPA suitable)



VDE tested







## PLIERS – THEY PERFORM WELL!

BERNSTEIN mainly offers electronics pliers for professional demands which are characterised by their consistent quality and a long service life. Our series of pliers differ from each other due to their different production methods and properties.

The EUROLINE, CLASSICline und BLACKline series of pliers are made from high-quality blanks which are hot forged in a die and inserted through the die. The pliers are oil hardened and the tips receive additional inductive hardening.

The TECHNICLINE series of pliers are cut by laser from ball bearing steel and further processed and refined in CNC machining centres, allowing us to achieve a particularly stable microstructure with enormous cutting performance.

This is why our pliers are suitable for cutting all types of wire.

The tensile strength (soft, semi-hard, hard wire) is crucial for common resistance wire, solder wire, winding wire or heating wire (thermocouple wire). Particularly for copper wire, brass wire, steel wire, iron wire, aluminium wire, bond wire, tin wire, nickel wire, gold wire, silver wire, platinum wire, tungsten-copper wire, tungsten wire, glass fibre and even Kevlar.

Please note the cutting value given in the packaging of the pliers as well as the care instructions for a long service life.

### **DIFFERENCES OF THE PLIERS**

#### **MATERIALS**

Depending on the model and the requirements, we use high-alloyed tool steels or highgrade ball bearing steel (chrome steel) from selected suppliers.

#### CONSTRUCTION

We manufacture pliers with four different joint constructions (joint) depending on the application and design of the pliers.

#### Lay-on joint

The simplest form for joining the two halves of a pair of pliers is the lap joint. Here, the levers are put on top of each other and connected by a hinge pin. This construction is only used for very crude pliers.

#### Lap joint

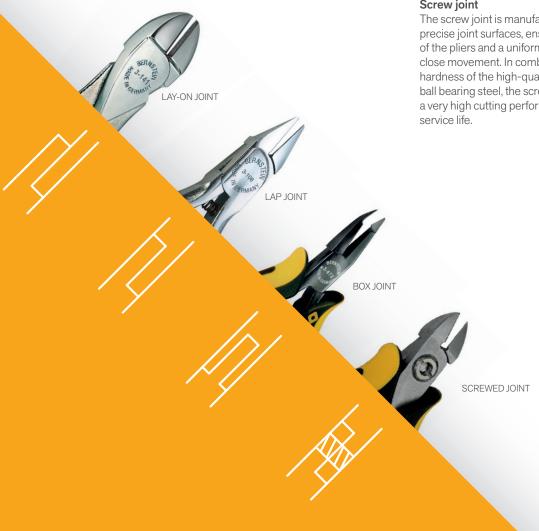
For a single joint, the joint surfaces are also milled out so that the halves fit into one another and can be connected using a hinge pin.

#### Box joint

The most complex construction is the box joint. In a very special process, one lever is passed through the joint of the other lever which is opened using heat. The joint is then pressed together and connected with a pin. This construction ensures the best parallel motion of the tips and an extremely long service life.

#### Screw joint

The screw joint is manufactured with highly precise joint surfaces, ensuring smooth motion of the pliers and a uniform, low-friction openclose movement. In combination with the basic hardness of the high-quality chrome-vanadium ball bearing steel, the screw design provides a very high cutting performance with a long



#### **SURFACES**

Over the decades we have developed surface properties that meet the wide ranging applications and requirements arising in daily use.

This involves properties such as corrosion protection, hardness, abrasion, spalling, smoothness and surface roughness in order to ensure the optimal work results.



The service life of the cutting tips depends on their sharpness. The sharper the edge (full flush) the quicker the wear. That's why semiflush pliers are preferable as long as flush or shock-reducing cutting is not required.

#### Semi flush

This can be used for hard and soft steel wires and soft materials, such as copper wire. The cut leaves a pyramid-like tip at the end of the wire.

#### Flush

This provides an almost flush cut. It can be used for soft steel wires and copper wire. The cut is slightly shock reduced. It only leaves a very small tip at the end of the wire.

#### Full flush

This cuts completely flush and provides an extremely sharp cut.

It is used exclusively for soft steel wires and copper wire and has a largely shock-reducing cut. It cuts absolutely plane-parallel.

#### Special flush

This is used to cut glass fibre, Kevlar, etc.

#### Fitted with carbide insert

Inserted with hard metal tips, designed for constant stress. These are also for tough nickel, electrode and tungsten wires.



BURNISHED (free of glare and reflections)



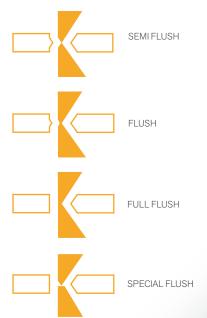
HIGH-GLOSS STEEL POLISHED



FINE POLISHED AND GLOSSY BURNISHED (free of glare and reflections)



MATT FINISH (free of glare and reflections)



#### **WIRE QUALITIES AND SYMBOLS**

 $(N/mm^2 = tensile strength$ 

Soft wire: 220 - 250 N/mm²
 medium hard wire: 750 - 800 N/mm²
 hard wire: 1600 - 1800 N/m

P Piano wire: 2200 - 2300 N/mm

## ESD ELECTRONIC PLIERS **BLACKLINE**

The pliers in the BLACKLINE series are characterised by their dip-insulated slender grips. They benefit from a comfortable feel and the pliers do not slip when held. They give the feeling that your are working very close to the workpiece and allow you to control cutting in an optimal manner. The slim heads are ideal for working on delicate components and feature a highly polished, corrosion-resistant surface.

The smooth, box-jointed or single-jointed construction (depending on the model) guarantees a long service life if cared for properly.

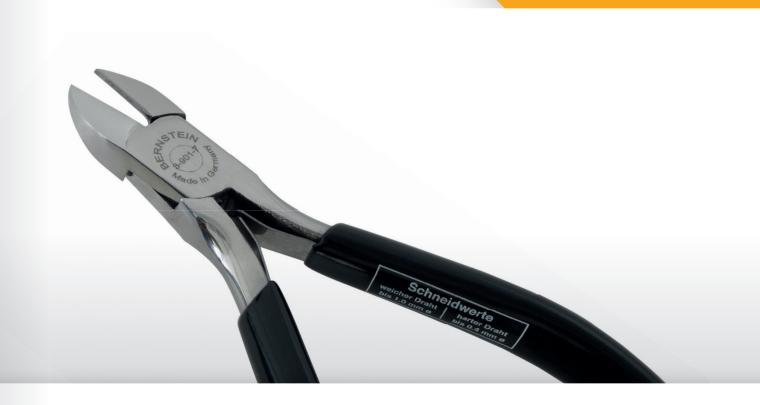
The pliers have been tested with great results in accordance with DIN EN 61340-5-1, 61340-2-1 and 61340-2-3 as well as for work in ESD protected areas.







	ArtNo.	Short description	Туре	Flush	0	Cutting	values	P	Head width	Cutting length	Total length	Weight in g
•	CUTTING I	PLIERS										
	3-901-7	ESD side cutters	-	Semi flush	1.5	1.0	0.4	-	12	10	115	65
	3-902-7	ESD side cutters	-	Flush	1.5	1.0	-	-	12	10	120	65
	3-905-7	ESD top cutters	-	Flush	0.8	0.6	-	-	13	3 x 20*	135	75
	3-906-7	ESD end cutters	-	Flush	0.8	0.6	-	-	13	7 x 25*	125	75
•	HOLDING	PLIERS							*ja	w length		
	3-932-7	ESD flat nose pliers	not serrated jaws	-	-	-	-	-	11.5	21.5	120	60
	3-933-7	ESD snipe nose pliers	not serrated jaws	-	-	-	-	-	11.5	23	125	60
	3-945-7	ESD snipe nose pliers	serrated jaws	-	-	-	-	_	12.5	12.5	145	85



#### ▶ 3-960

### ESD pliers set BLACKline 4 pcs

320 x 150 x 20 mm Weight: 345 g

ArtNo.	Content
3-960-0	ESD dissipative bag 4 empty compartments
3-901-7	ESD side cutters BLACKline semi flush 115 mm
3-906-7	ESD end cutters BLACKline flush 125 mm
3-932-7	ESD flat nose pliers BLACKline not serrated jaws 120 mm
3-933-7	ESD snipe nose pliers BLACKline not serrated jaws 125 mm



#### ▶ 3-960-VB

#### ESD tool kit BLACKline VARIO 6 pcs

150 x 190 x 80 mm Weight: 750 g

ArtNo.	Content
5-090-0	ESD tool holder VARIO 8 slots
3-901-7	ESD side cutters BLACKline semi flush 115 mm
3-906-7	ESD end cutters BLACKline flush 125 mm
3-932-7	ESD flat nose pliers BLACKline not serrated jaws 120 mm
3-933-7	ESD snipe nose pliers BLACKline not serrated jaws 125 mm
5-078-13	ESD SMD universal tweezers 130 mm form PSF stainless steel, dissipative
5-055-13	ESD SMD tweezers 120 mm form 7a stainless steel angle 40°, dissipative



## ESD ELECTRONIC PLIERS CLASSICLINE

The pliers in the CLASSICLINE series are characterised by their high-gloss electropolished surface, which is very resistant to corrosion, without friction and microcracks, extremely smooth and free of particles. The heads are ideal for working on small components.

The pliers sit perfectly in the hand thanks to their two-component protective covering, which is ergonomically shaped, dissipative and features an individually adjustable double leaf spring. The smooth box joint guarantees a long service if cared for properly.

The pliers have been tested with great results in accordance with DIN EN 61340-5-1, 61340-2-1 and 61340-2-3, as well as for work in ESD protected areas.



























	ArtNo.	Short description	Туре	Flush	0	Cutting	y values	(P)	Head width	Cutting length	Total length	Weight in g
•	CUTTING F	PLIERS										
	3-601-15	ESD side cutters	_	Semi flush	1.5	1.1	0.5	-	11	13	115	65
	3-602-15	ESD side cutters	_	Flush	1.5	1.1	-	-	11	13	115	65
	3-603-15	ESD side cutters	_	Semi flush	1.3	1.0	0.4	-	11	13	115	65
	3-604-15	ESD side cutters	_	Flush	1.3	0.8	-	-	11	13	115	65
	3-606-15	ESD side cutters	_	Flush	0.6	0.8	-	-	10.5	6	120	55
	3-625-15	ESD oblique top cutters	_	Flush	1.5	0.8	0.8	-	11	11	120	90
	3-627-15	ESD top cutters	_	Flush	1.5	0.8	0.5	-	11	11	120	90
•	HOLDING F	PLIERS								jaw length		
	3-631-15	ESD round nose pliers	not serrated jaws	-	-	-	-	-	10	20	120	55
	3-632-15	ESD flat nose pliers	not serrated jaws	-	-	-	-	-	9	18.5	120	55
	3-633-15	ESD snipe nose pliers	not serrated jaws	-	-	-	-	-	9.5	17.5	120	55
	3-634-15	ESD snipe nose pliers	not serrated jaws	-	-	-	-	-	9.5	22.5	120	55

#### ▶ 3-650-V

#### ESD pliers set CLASSICline VARIO 5 pcs

150 x 190 x 80 mm Weight: 750 g

ArtNo.	Content
5-090-0	ESD tool holder VARIO 8 slots
3-601-15	ESD side cutters CLASSICline semi flush 115 mm
3-631-15	ESD round nose pliers CLASSICline not serrated jaws 120 mm
3-632-15	ESD flat nose pliers CLASSICline not serrated jaws 120 mm
3-633-15	ESD snipe nose pliers CLASSICline not serrated jaws 120 mm
3-634-15	ESD snipe nose pliers CLASSICline not serrated jaws 120 mm



#### ▶ 3-960-VC

#### ESD tool kit CLASSICline VARIO 6 pcs

150 x 180 x 80 mm Weight: 700 g

ArtNo.	Content
5-090-0	ESD tool holder VARIO 8 slots
3-601-15	ESD side cutters CLASSICline semi flush 115 mm
3-606-15	ESD side cutters CLASSICline flush 120 mm
3-632-15	ESD flat nose pliers CLASSICline not serrated jaws 120 mm
3-633-15	ESD snipe nose pliers CLASSICline not serrated jaws 120 mm
5-078-13	ESD SMD universal tweezers 130 mm form PSF stainless steel dissipative
5-055-13	ESD SMD tweezers 120 mm form 7a stainless steel angle 40° dissipative



#### ▶ 3-960-C

#### ESD pliers set CLASSICline 4 pcs

320 x 150 x 20 mm Weight: 380 g

ArtNo.	Content
3-960-0	ESD dissipative bag 4 empty compartments
3-601-15	ESD side cutters CLASSICline semi flush 115 mm
3-606-15	ESD side cutters CLASSICline flush 120 mm
3-632-15	ESD flat nose pliers CLASSICline not serrated jaws 120 mm
3-633-15	ESD snipe nose pliers CLASSICline not serrated jaws 120 mm



## **ESD ELECTRONIC PLIERS EUROLINE**

The pliers in the EUROLINE series are characterised by the precision in manufacturing. The delicate, highly precise heads are produced by hand in a series of work steps. They are highly suitable for working on the smallest components or for cutting fine, strong wires. The high-gloss burnished surface guarantees resistance to corrosion and glare-free, fatigue-free work under the magnifier or microscope. The pliers sit perfectly in the hand thanks to their two-component protective covering, which is ergonomically shaped, dissipative and features an individually adjustable double leaf spring. The smooth box joint guarantees a long service if cared for properly.

The pliers have been tested with great results in accordance with DIN EN 61340-5-1, 61340-2-1 and 61340-2-3, as well as for work in ESD protected areas.



#### ▶ 3-960-E

#### ESD pliers set EUROLINE 4 pcs

320 x 150 x 20 mm Weight: 375 g

Also available as ESD dissipative zipper pocket Art.-No. 3-680.

ArtNo.	Content
3-960-0	ESD dissipative bag 4 empty compartments
3-651-15	ESD mini side cutters EUROLINE flush 120 mm
3-672-15	ESD end cutters EUROLINE flush 130 mm
3-682-15	ESD flat nose pliers EUROLINE not serrated jaws 130 mm
3-683-15	ESD snipe nose pliers EUROLINE not serrated jaws 130 mm

#### ▶ 3-960-VE

#### ESD tool kit EUROLINE VARIO 6 pcs

150 x 190 x 80 mm Weight: 750 g

ArtNo.	Content
5-090-0	ESD tool holder VARIO 8 slots
3-651-15	ESD mini side cutters EUROLINE flush 120 mm
3-672-15	ESD end cutters EUROLINE flush 130 mm
3-682-15	ESD flat nose pliers EUROLINE not serrated jaws 130 mm
3-683-15	ESD snipe nose pliers EUROLINE not serrated jaws 130 mm
5-078-13	ESD SMD universal tweezers 130 mm form PSF stainless steel dissipative
5-055-13	ESD SMD tweezers 120 mm form 7a stainless steel angle 40° dissipative

#### ▶ 3-960-ES

#### ESD pliers set EUROLINE 3 pcs

without container, loosely packed Weight: 200 g

ArtNo.	Content
3-651-15	ESD mini side cutters EUROLINE flush 120 mm
3-672-15	ESD end cutters EUROLINE flush 130 mm
3-683-15	ESD snipe nose pliers EUROLINE not serrated jaws 130 mm













ArtNo.	Short description	Туре	Flush	0	Cutting	values	P	Head width	Cutting length	Total length	Weig in
CUTTING PLI	ERS										
3-0641	ESD mini side cutters		Full flush	1	0	0	0	10	10	130	
3-0645	Stripping mini side cutters		Full flush	0,8	0	0	0	10	8	130	
3-651-15	ESD mini side cutters	_	Flush	1.5	0.8	-	-	10	9.5	120	
3-651-15 DR	ESD mini side cutters	with wire holder	Flush	1.5	0.8	_	-	10	9.5	120	
3-652-15	ESD mini side cutters	-	Flush	1.5	0.8	-	-	10	10	120	
3-653-15	ESD mini side cutters	concave	Flush	1.5	0.8	-	-	10	10	120	
3-654-15	ESD side cutters	-	Semi flush	1.5	1.0	0.4	-	11	13	125	
3-655-15	ESD side cutters	-	Flush	1.5	1.0	-	-	11	13	125	
3-656-15	ESD side cutters	-	Semi flush	1.5	1.0	0.3	-	11	13	125	
3-657-15	ESD side cutters	-	Flush	1.5	1.0	-	-	11	13	125	
3-658-15	ESD side cutters	-	Full flush	1.5	0.6	-	-	11	13	125	
3-661-15	ESD mini side cutters	with carbide insert	Semi flush	2.0	1.5	1.0	0.6	11	10	120	
3-665-15	ESD mini side cutters	with carbide insert	Special flush	only fo	or glass fi	bre 2.0		11	10	120	
3-668-15	ESD side cutters	_	Semi flush	2.0	1.5	0.7	_	14	17	135	1
3-669-15	ESD side cutters	_	Flush	2.0	1.5	-	-	14	17	135	1
3-672-15	ESD end cutters	-	Flush	0.8	0.6	_	-	10	5	130	
3-674-15	ESD top cutters	-	Semi flush	0.8	0.6	-	-	10	5	130	
3-675-15	ESD oblique top cutters	-	Flush	1.2	1.0	0.4	-	10	10	115	
HOLDING PL	IERS							ja	w length		
3-681-15	ESD round nose pliers	not serrated jaws	_	-	-	_	-	10	20	130	
3-682-15	ESD flat nose pliers	not serrated jaws	_	_	-	_	_	10	20	130	
3-683-15	ESD snipe nose pliers	not serrated jaws	-	-	-	-	-	10	23	130	
3-685-15	ESD snipe nose pliers	not serrated jaws	_	-	-	-	-	10	32	140	
3-686-15	ESD snipe nose pliers	serrated jaws	_	_	_	_	-	10	32	140	
3-687-15	ESD snipe nose pliers	not serrated jaws	_	_	_	_	-	10	19	130	
3-688-15	ESD flat nose pliers	not serrated jaws	_	_	_	_	-	8.5	18	130	
3-689-15	ESD snipe nose pliers	not serrated jaws	_	_	_	_	_	12	39	145	

## ESD ELECTRONIC PLIERS **TECHNICLINE**

The pliers in the TECHNICLINE series are characterised by their exceptional cutting performance. The precisely symmetrical, induction-hardened cutting edges have a hardness of 63-65 HRC and thus achieve particularly high cutting values, making them suitable for hard and special wires (HRC 81 made of tungsten carbide steel is also available on request). The matt-polished surface is scratch proof, glare free and non reflective.

The pliers sit perfectly in the hand thanks to their two-component protective covering, which is ergonomically shaped, dissipative and features an individually adjustable double leaf spring. The smooth screw joint can be readjusted, guaranteeing a long service life if cared for properly. OBSERVE THE CARE INSTRUCTIONS

The pliers have been tested with great results in accordance with DIN EN 61340-5-1, 61340-2-1 and 61340-2-3, as well as for work in ESD protected areas.





The following types are available, specifications in mm:

ArtNo.	Short description	Туре	Flush	Cutting values			Head width	Cutting length	Total length	Weight in g	
CUTTING F	PLIERS										
3-961-15	ESD side cutters	-	Semi flush	1.2	1.0	0.6	-	10	8	120	75
3-963-15	ESD side cutters	_	Full flush	1.0	0.8	-	-	10	8	120	75
3-964-15	ESD side cutters	-	Semi flush	1.2	1.0	0.6	-	10	8	120	75
3-966-15	ESD side cutters	_	Full flush	1.0	0.9	-	-	10	8	120	75
3-967-15	ESD side cutters	_	Semi flush	1.2	1.0	-	-	10	8	120	75
3-969-15	ESD side cutters	_	Full flush	0.8	0.4	-	-	10	8	120	75
3-971-15	ESD side cutters	-	Semi flush	1.6	1.3	0.7	-	12.5	10	125	80
3-973-15	ESD side cutters	-	Full flush	1.6	1.0	-	-	12.5	10	125	80
3-981-15	ESD end cutters	-	Full flush	0.8	0.6	_	-	10	20	135	80
3-985-15	ESD oblique top cutters	-	Flush	1.2	1.0	-	_	10	6.4	130	80
HOLDING	HOLDING PLIERS								jaw length		
3-991-15	ESD round nose pliers	not serrated jaws	-	-	_	-	-	10	20	130	75
3-992-15	ESD flat nose pliers	not serrated jaws	-	-	-	-	-	10	20	130	75
3-996-15	ESD snipe nose pliers	not serrated jaws	=	-	_	-	_	10	30	140	80

<sup>\*</sup> All site cutters as tungsten carbite cutters (HRC 81 for hart wires) available on request.

P

#### ▶ Wire holder

Wire catchers prevents the wire from falling between assemblies and components on circuit boards or into circuits. These cut wire pieces can cause serious damage. Suitable for side cutters for easy manual retrofitting.

ArtNo.	Side cutters for ArtNo.	For head width in mm	Weight in g
3-999-1	ArtNo. 3-961-15 to 3-696-15	10.0	9
3-999-2	ArtNo. 3-971-15 to 3-973-15	12.5	9



#### ▶ 3-960-VT

#### ESD tool kit TECHNICLINE VARIO 6 pcs

150 x 190 x 80 mm Weight: 750 g

ArtNo.	Content
5-090-0	ESD tool holder VARIO 8 slots
3-963-15	ESD side cutters TECHNICLINE full flush 120 mm
3-981-15	ESD end cutters TECHNICLINE full flush 135 mm
3-992-15	ESD flat nose pliers TECHNICLINE not serrated jaws 130 mm
3-996-15	ESD snipe nose pliers TECHNICLINE not serrated jaws 140 mm
5-078-13	ESD SMD universal tweezers 130 mm form PSF stainless steel dissipative
5-055-13	ESD SMD tweezers 120 mm form 7a stainless steel angle 40° dissipative



#### ▶ 3-970

#### ESD pliers set TECHNICLINE 4 pcs

190 x 135 x 35 mm Weight: 545 g

	Content
3-680-0	ESD dissipative bag 4 empty compartments
3-963-15	ESD side cutters TECHNICLINE full flush 120 mm
3-971-15	ESD side cutters TECHNICLINE semi flush 125 mm
3-992-15	ESD flat nose pliers TECHNICLINE not serrated jaws 130 mm
3-996-15	ESD snipe nose pliers TECHNICLINE not serrated jaws 140 mm



#### ▶ 3-970-T

#### ESD pliers set TECHNICLINE 4 pcs

320 x 150 x 20 mm

Weight: 410 g Also available as ESD dissipative zipper pocket (Art.-No. 3-970)

ArtNo.	Content
3-960-0	ESD dissipative bag 4 empty compartments
3-963-15	ESD side cutters TECHNICLINE full flush 120 mm
3-971-15	ESD side cutters TECHNICLINE semi flush 125 mm
3-992-15	ESD flat nose pliers TECHNICLINE not serrated jaws 130 mm
3-996-15	ESD snipe nose pliers TECHNICLINE not serrated jaws 140 mm





















ArtNo.	Short description	Туре	Flush	0	Cutting	y values	P	Head width	Cutting/ jaw length	Total length mm	Weight in g
3-235-16	Telephone pliers	serrated jaws	-	-	-	-	-	15	55	160	145
3-245-16	Telephone pliers	serrated jaws	-	-	-	-	-	18	75	205	210
3-255-16	Telephone pliers	serrated jaws	-	-	-	_	-	18	70	205	210
3-531-16	Flat nose pliers	serrated jaws	=	-	-	-	-	15	40	150	105
3-132-16	Side cutters	-	Full flush	4.0	2.3	1.5	-	15	16	130	125
3-133-16	Side cutters	_	-	4.0	2.5	1.8	-	18	18	150	155
3-732-16	Combination pliers	serrated jaws	-	4.0	2.5	2.0	-	23	35	170	205



The pliers of this program have been successfully tested by several testing laboratories according to DIN EN 61340-5-1, 61340-2-1, as well as 61340-2-3 for work in ESD-protected areas.







ArtNo.	Short description	Туре	Flush	0	Cutting	y values	P	Head width	Cutting/jaw length	Total length mm	Weight in g
3-133-13	ESD side cutters	-	Semi flush	4.0	2.5	1.8	-	18	18	145	165
3-245-13	ESD telephone pliers	serrated jaws	Semi flush	_	-	-	-	18	75	200	180
3-732-13	ESD combination pliers	serrated jaws	Semi flush	4.0	2.5	1.8	-	23	35	165	185

## PLIERS WITH SPECIAL REQUIREMENTS

#### ▶ 3-573

#### Water pump pliers 180mm with push-button

Size adjustable at the push of a button - thanks to the push button. With extra slim head for hard-to-reach places and protective, non-slip handles.

Total length: 180 mm, weight: 170 g



#### ▶ 3-575-6

#### Water pump pliers 240 mm

Water pump pliers 240 mm, very stable, dip insulatet, non-slip handles.

Total length: 240 mm, weight: 380 g



#### ▶ 3-0641

#### Mini side cutters full flush for CU-wire up to Ø 1.0 mm

Elektronik Seitenschneider mit Feder, ohne Schneidwate, für CU-Drähte bis Ø 1,0 mm / 18 AWG.

Gesamtlänge: 135 mm, Gewicht: 70 g



#### ▶ 3-0645

#### Stripping side cutters full flush for CU-Wire up to Ø 0.8 mm

Stripping side cutter standard version, with spring, without cutting edge, for CU wires up to Ø 0.8 mm / 22-26 AWG.

Total length: 130 mm, weight: 80 g



#### ▶ 3-0648

#### Cable cutter up to Ø 10.5 mm with lock function

especially for coaxial cables, robust design, spring and locking device, not for steel wire

Total length: 170 mm, weight: 155 g



### TERMS OF SALE AND DELIVERY

#### **GENERAL**

The nature and scope of delivery are specified in the order confirmation. The following delivery terms shall apply to all deliveries to be carried out by us. Purchasing conditions of the customer do not oblige us, even if we do not expressly contradict this. Verbal or by intercom agreements made require our written confirmation. Obvious mistakes in offers, order confirmations, etc. are expressly reserved and can be considered at any time. We are entitled to process any data relating to the business relationship or in connection with the same concerning buyers, whether the buyer itself or third parties, within the framework of the Federal Data Protection Act.

#### **OFFER**

Our offers are permissive, an order is deemed to be granted if confirmed by us in writing. PRICES, DELIVERY BASIS AND PACKAGING Unless otherwise agreed, the prices in Euros, ex works, are exclusive packaging. In the case of special packaging regulations of the customer, the additional costs involved are invoiced. Packaging is not accepted.

#### **DELIVERY**

The delivery takes place at the expense and risk of the buyer without regard to who bears the freight costs. We reserve the right to place orders in partial deliveries. For custom-made products, excess or short deliveries of up to 10% are permitted.

#### **DELIVERY TIME**

The delivery time begins upon receipt of all information required for the execution of the order. We endeavor to comply with the delivery time specified in the order confirmation. No claims of any kind can be asserted from a delayed delivery.

#### **COMPLAINTS**

Complaints can only be accepted within 8 days after receiving of the goods.

The shape and colour of the tool may differ from the item shown in the catalogue.

#### **GUARANTEE**

For all BERNSTEIN tools, which are unusable due to proven material or manufacturing defects, we deliver within one year after deliver a replacement. This free replacement service is excluded if the tools have become unusable due to natural wear or improper handling.

#### **DISCLAIMER**

We do not assume any guarantee for the suitability of our products for the intended purpose of the customer. For damages caused by unsuitable or improper use, commissioning by the customer or third parties, and for the natural wear and tear we assume no guarantee. Any claims for damages, irrespective of the legal basis, as well as, in particular, the liability by tort (product liability) are excluded to the extent permitted by law.

#### **PAYMENT**

Our invoices are payable within 10 days of the invoice date with 2% discount or in 30 days net, unless otherwise agreed in the order confirmation.

#### RESERVATION OF TITLE

We reserve the title to all goods delivered by us until the buyer has paid all claims arising from the business relationship. The buyer is entitled to resell the reserved goods in ordinary business transactions. In the case of resale, the buyer has to reserve the ownership of the sold goods on the same terms as his customer. The purchaser hereby assigns to us the purchase price claim against the buyer from the resale.

#### **FULFILLMENT AND JURISDICTION**

Place of performance and jurisdiction for delivery and payment is Remscheid. In any case, only German law shall apply, with the exclusion of any foreign law.

#### ONLINE DISPUTE RESOLUTION

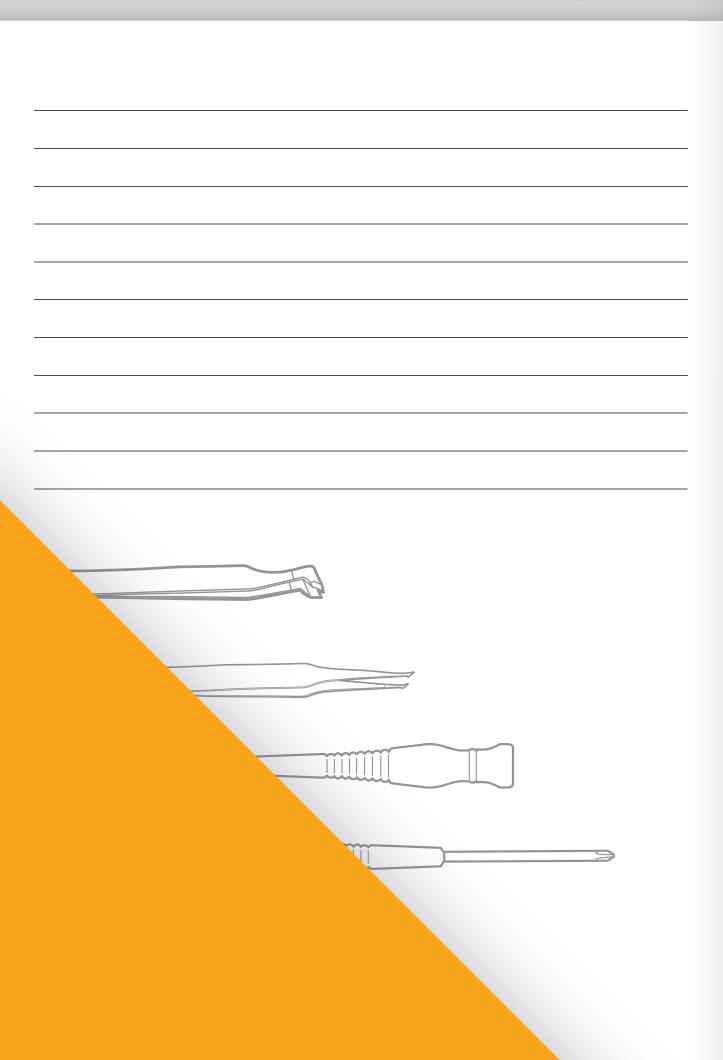
The European Commission provides a platform for online dispute resolutions (ODR) which can be accessed at

#### https://ec.europa.eu/consumers/odr/

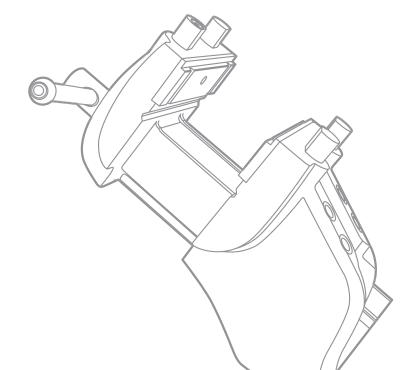
In order to settle dispute arising from a contractual relationship with a consumer or from whether such a contractual relationship exists at all, we will participate in dispute settlement proceedings before a consumer dispute resolution body. Consumers can contact their national European Consumer Centre in this regard. The respective contact details of the individual ECCs can be found at

https://www.evz.de/en/alternative-dispute-resolution/adr-in-europe/.











A little story about the word amber (BERNSTEIN)

The greek word for amber is "elektron": the root of today's term electronics. Even the greeks discovered the special feature of amber: by rubbing the natural amber can be electrostatically charged. The charged stone can attract dust particles.

Today you can use this property to check the authenticity of an amber. If it is real, it can be tested through charge rubbing on a cotton cloth.

You can also wear it as jewellery: it should protect from evil magic and give joy of life.

Just like our high-quality BERNSTEIN ESD Tools - them protect against electrostatics and give joy with the daily work.

(Autor Max Walter Hartmut Blombach)

### **BERNSTEIN**

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VDE TOOLS – WORKING UNDER TENSION

Vers.01

### **GET IN CONTACT WITH US**

### **BERNSTEIN**

### Werkzeugfabrik Steinrücke GmbH

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sales@bernstein-tools.de

### www.bernstein-tools.de

**VISIT US ON THE WEB** 

Product videos and blog posts round off our online offering. Furthermore, we also respect the traditional sales channel via specialist retailers and offer the option to present your webshop as an online sales platform for products by BERNSTEIN.

We update our product information on a regular basis and automatically using our Product Information System. This enables the quick

and up-to-date compilation of customer-speci-

fic data feeds for your own digital sale activities.

Take advantage of this service and always keep

Bernstein product information up to date!

### **SYMBOL LEGEND**



New product



Number of tools in sets



Weight



Dimensions



ESD protection (EPA suitable)



VDE tested







# VDE TOOLS – WORKING UNDER TENSION

Working under tension is always a highly explosive undertaking. Here it is absolutely necessary safety precautions to be taken into account. Work under voltage" may only be carried out by appropriately trained electricians.

The skilled personnel can assess the required security precautions. The protective devices (covers, enclosures or insulating sheaths) must be selected and installed in such a way as to eliminate any risk of electrical or mechanical overloading.

All our insulated tools are individually tested according to VDE regulations IEC 60900 / EN 60900 and are therefore approved for work under a voltage of AC 1,000 V and DC 1,500 V.

### **UNIT-TESTED SAFETY**

### Voltage test

Unit-tested safety, tested with 10,000 V, approved for 1000 V. This means 10-fold safety.

### Coating thickness measurement

Load with 20 N. No breakdown shall occur at 70° C when tested with a voltage of 5000 V AC.

### Withdrawal force check

the adhesion of the PVC coating to 500 N or 50 N after 168 hours of storage at 70° C.

two-colour multilayer

# **VDE PLIERS WITH TWO-COLOUR MULTILAYER SAFETY INSULATION**

Pliers made from special tool steel, oil-hardened, chrome-plated with two-colour multilayer dipped insulated, outer red, inner yellow. Damage to the outer red insulation is immediately visible due to the yellow insulation. The advantage is that a simple safety check can be carried out at any time.

Insulated in accordance with VDE regulations IEC 60900/ EN 60900, individually tested, permitted voltage, with which insulated pliers can be used:

1000 V AC voltage or 1500 V DC voltage.





















The following types are available, specifications in mm:

ArtNo.	Short description	Туре	Cutting values	DIN ISO	Total length	Weight in g	1000 \	V
13-106 VDE	VDE side cutters	Cutting edges inductively hardened	Steel wire up to Ø 2.0 mm	DIN ISO 5749	165	210		DVE
13-207 VDE	VDE telephone pliers	serrated jaws	Steel wire up to Ø 2.5 mm	DIN ISO 5749	205	240		DVE
13-208 VDE	VDE telephone pliers	serrated jaws	Steel wire up to Ø 2.5 mm	DIN ISO 5749	200	250		DVE
13-708 VDE	VDE combination pliers	serrated jaws	Steel wire up to Ø 2.8 mm	DIN ISO 5746	210	390		DVE
13-806 VDE	VDE wire strippers	with stop screw	-	DIN ISO 5743	170	200		DVE

# **VDE TWEEZERS**

Unsere VDE Pinzetten finden sie in der BERNSTEIN Pinzetten-Broschüre.

# **VDE PLIERS WITH ONE-COMPONENT PLASTIC HANDLE**

one-component plastic handle

Pliers made from special tool steel for hard and soft wires, chrome-plated with one-component plastic grips that are non-slip.

Insulated in accordance with VDE regulations IEC 60900/EN 60900, individually tested, permitted voltage, under which insulated pliers can be used. 1000 V AC voltage or 1500 V DC voltage.























The following types are available, specifications in mm:

ArtNo.	Short description	Туре	Cutting values	DINISO	Total length	Weight in g	1000 V
13-906 VDE	VDE side cutters	Cutting edges inductively hardened	Steel wire up to Ø 2.0 mm	DIN ISO 5749 (5238B)	165	210	
13-908 VDE	VDE side cutters	Cutting edges inductively hardened	Steel wire up to Ø 2.5 mm	DIN ISO 5749 (5238B)	180	290	
13-915 VDE	VDE telephone pliers	serrated jaws, wire cutters	Steel wire up to Ø 2.0 mm	DIN ISO 5745 (5236A)	160	150	
13-916 VDE	VDE telephone pliers	serrated jaws, wire cutters	Steel wire up to Ø 2.0 mm	DIN ISO 5745 (5236A)	165	150	$\triangle$
13-917 VDE	VDE telephone pliers	serrated jaws, wire cutters	Steel wire up to Ø 2.5 mm	DIN ISO 5745 (5236A)	205	220	
13-918 VDE	VDE telephone pliers	serrated jaws, wire cutters	Steel wire up to Ø 2.5 mm	DIN ISO 5745 (5236A)	200	220	
13-926 VDE	VDE round nose pliers	serrated jaws	-	DIN ISO 5745 (5249A)	165	165	
13-927 VDE	VDE flat nose pliers	serrated jaws	-	DIN ISO 5745 (52489)	170	175	
13-936 VDE	VDE combination pliers	serrated jaws	Steel wire up to Ø 2.0 mm	DIN ISO 5746 (5244)	170	220	
13-937 VDE	VDE combination pliers	serrated jaws	Steel wire up to Ø 2.3 mm	DIN ISO 5746 (5244)	190	280	
13-938 VDE	VDE combination pliers	serrated jaws	Steel wire up to Ø 2.8 mm	DIN ISO 5746 (5244)	210	350	
13-946 VDE	VDE wire strippers	with stop screw	-	DIN ISO 5743	170	190	

and / or

# **VDE SCREWDRIVERS**

### ▶ VDE Screwdrivers

BERNSTEIN VDE screwdrivers are under the control of the VDE test centre. Each screwdriver in this series is individually tested in accordance with VDE guidelines DIN IEC 60900 / EN 60900, IEC 900. The test guarantees the highest level of safety for all work up to 1000 V.w

Blade: hardened over the entire length, burnished

with protective coating

Handle: impact-resistant, two-colour multi-

component insulation, with anti-slip protection and practical suspension hole

SLOT CROSS-RECESS SOCKET WRENCH

The following types are available, specifications in mm:

ArtNo.	Symbol	Size / drive	Blade length	Balde width	Blade thickness	Blade diameter	Handle length	Total length	Weight in g
14-651 VDE	$\ominus$	Slot	75	2.5	0.4	_	100 x 21	175	26
14-652 VDE	$\ominus$	Slot	100	3.5	0.6	-	100 x 21	200	34
14-653 VDE	$\ominus$	Slot	100	4	0.8	-	100 x 21	200	37
14-654 VDE	$\ominus$	Slot	125	5.5	1	-	107 x 27	232	75
14-656 VDE	$\ominus$	Slot	150	6.5	1.2	-	114 x 32	264	112
14-658 VDE	$\ominus$	Slot	175	8	1.2	-	121 x 35	296	175
14-681 VDE	<b>⊕</b>	PH0	60	-	-	3	100 x 21	160	27
14-682 VDE	<b>+</b>	PH1	80	-	-	4.5	107 x 27	187	57
14-683 VDE	<b>⊕</b>	PH2	100	-	-	6	114 x 32	214	92
14-684 VDE	<b>⊕</b>	PH3	150	-	-	8	121 x 35	271	166
14-685 VDE	<b>⊕</b>	PH/S1	80	-	-	4.5	107 x 27	187	57
14-686 VDE	<b>⊕</b>	PH/S2	100	-	-	6	114 x 32	214	92
14-692 VDE	<b>*</b>	PZ1	80	-	-	4.5	107 x 27	187	57
14-693 VDE	<b>*</b>	PZ2	100	-	-	6	114 x 32	214	92
14-694 VDE	<b>*</b>	PZ3	150	-	-	8	121 x 35	271	166
14-695 VDE	*	PZ/S1	80	-	-	4.5	107 x 27	187	57
14-696 VDE	*	PZ/S2	100	-	-	6	114 x 32	214	92
16-298 VDE	0	3	125	-	-	-	100 x 21	225	40
16-299 VDE	0	4	125	-	-	-	100 x 21	225	45
16-301 VDE	0	5	125	-	-	-	100 x 21	225	55
16-302 VDE	0	5.5	125	_	-	-	107 x 27	232	85

### ▶ 14-650 VDE

### VDE screwdriver set 7 pcs

Weight: 450 g

ArtNo.		Content
14-651 VDE	$\ominus$	VDE screwdriver slot blade 2.5 x 75 mm
14-652 VDE	$\ominus$	VDE screwdriver slot blade 3.5 x 100 mm
14-654 VDE	$\ominus$	VDE screwdriver slot blade 5.5 x 125 mm
14-656 VDE	$\ominus$	VDE screwdriver slot blade 6.5 x 150 mm
14-681 VDE	<b>(+)</b>	VDE screwdriver cross-recess PH0 Ø 3.0 mm
14-682 VDE	<b>(+)</b>	VDE screwdriver cross-recess PH1 Ø 4.5 mm
4-343 VDE	$\ominus$	VDE voltage tester slot blade 3.0 x 0.7 x 60 mm



14-650 VDE

# **VDE WRENCHES AND SOCKETS**



### ▶ VDE open-end wrench

Chrome vanadium, chrome-plated, according to DIN 7446, jaw position 15°

Two-colour multilayer dip insulation, 1000 V

ArtNo.	WAF	Weight in g	1000 V
16-501 VDE	6	24	$\triangle$
16-502 VDE	7	25	<b>A</b>
16-503 VDE	8	26	<b>A</b>
16-504 VDE	9	38	$\triangle$
16-505 VDE	10	42	
16-506 VDE	11	48	
16-507 VDE	12	58	
16-508 VDE	13	68	
16-509 VDE	14	75	
16-511 VDE	15	88	
16-512 VDE	17	120	
16-513 VDE	19	160	
16-514 VDE	21	210	
16-515 VDE	24	300	
16-517 VDE	26	340	$\triangle$



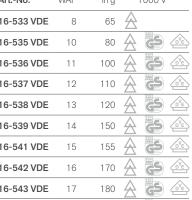
### ▶ VDE single-ended ring wrench

Chrome vanadium, chrome-plated, according to DIN 7447,

\Maiabt

Two-colour multilayer dip insulation, 1000 V

ArtNo.	WAF	Weight in g	1	1000 V	
16-533 VDE	8	65	A		
16-535 VDE	10	80	$\mathbb{A}$	4	DE
16-536 VDE	11	100	$\triangle$	6	DE
16-537 VDE	12	110	A	4	DVE
16-538 VDE	13	120	A	3	DE
16-539 VDE	14	150	A	3	DE
16-541 VDE	15	155	A	3	DE
16-542 VDE	16	170	A	6	DE
16-543 VDE	17	180	$\triangle$	6	DE
16-544 VDE	18	240	8	3	DE





1000 V

16-476 VDE

Weight in g

### ▶ VDE reversible ratchet

Type

According to DIN 7449, two-colour multilayer dip insulation

Hold or release the inserts at the push of a button; right/left by turning the lever.

	71				
16-471 VDE	<sup>1</sup> / <sub>2</sub> " square drive	260	668 🛧		
16-472 VDE	3/8" square drive	200	356 🗲		6
DIN 7436,, two	cket wrench -color multilayer immers ated, with locking device		<b>4 6</b>	16-475	5-VDE
ArtNr.	Туре	Total length	Weight in g	1000 V	1

20.5 x 14.5

Total length



### VDE sockets

Chrome vanadium, chrome-plated, according to DIN 7448 gith square drive, Two-colour multilayer dip insulation

ArtNo.	Inch	WAF	Weight in g	1000 V	
16-441 VDE	1/2	10	60	AG	5
16-442 VDE	1/2	11	63	4 6	5
16-443 VDE	1/2	12	64	4	5
16-444 VDE	1/2	13	64	4	5 4
16-445 VDE	1/2	14	67	A .	5
16-446 VDE	1/2	15	68	A	5 🕸
16-447 VDE	1/2	17	74	AG	5 🕸
16-448 VDE	1/2	19	83	AG	5
16-449 VDE	1/2	22	114	AG	5 🕸
16-451 VDE	1/2	24	117	AG	5
16-452 VDE	1/2	27	181	$\overline{\mathbb{A}}$	
16-453 VDE	1/2	30	195	A	
16-454 VDE	1/2	32	200	8	
16-482 VDE	3/8	7	28	$\triangle$	
16-483 VDE	3/8	8	29	A	5 🕮
16-484 VDE	3/8	9	31	A	5
16-485 VDE	3/8	10	31	<b>A G</b>	<b>S</b>
16-486 VDE	3/8	11	33	A	5 4
16-487 VDE	3/8	12	33	A	5
16-488 VDE	3/8	13	34	A = G	5 🕸
16-489 VDE	3/8	14	36	A	<b>S</b> 🕸
16-491 VDE	3/8	15	44	$A \subseteq$	<b>S</b>
16-492 VDE	3/8	16	50	A	<b>S</b>
16-493 VDE	3/8	17	54	A	5 🕸
16-494 VDE	3/8	19	58	8	
16-495 VDE	3/8	19	70	<u>A</u>	
16-496 VDE	3/8	20	72	8	
16-497 VDE	3/8	21	77	$\triangle$	
16-498 VDE	3/8	22	94	$\triangle$	

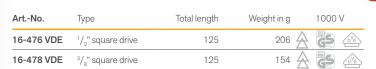
Extension

16-475-VDE

Art.-No.

DIN 7434, two-colour multilayer dip insulation Cannulated, locking with screw, with locking device

1/2" 4-kt. Drive



- other dimensions on request -(minimum purchase 5 pieces)

# **CABLE CUTTERS**

### Cable cutters

for copper and aluminium cables, two-colour multilayer immersion insulation, adjustment joint Material tool steel





15-501 VDE

15-506 VDE

### Ratchet cable cutters

for easier cutting of large cross-sections, for copper and aluminium cables, not for armoured cables.





# **VDE TOOLS**

### ▶ Adjustable spanner

According to DIN 3117, IEC 60900:2004, two-colour multilayer dip insulation, 1000 V, jaw position 15°, with scale graduation

ArtNo.	Width across flats	Weight in g	1000 V
16-773 VDE	0-26	300	$\triangle$
16-774 VDE	0-30	500	$\triangle$



### ▶ Insulating protective gloves

for work under voltage up to 1000 Volt, made of natural latex high elasticity piece tested according to DIN EN 60903, VDE 0682-part 311, test voltage 5000 Volt

ArtNo.	Туре	Tichkness	Length	Weight in g	1000 V
17-501 VDE	Größe 10	1.6 mm	360 ±15 mm	175	KL. 0



### 17-501-VDE

### ▶ NH plug-in-grip

with leather cuff 380 x 220 mm for inserting or removing NH fuse links

ArtNo.	Туре	Weight in g	1000 V
17-521 VDE	Siemens-handle for NH fuses 00-3, protection of forearm at higher currents (arc fault due to system)	450	



17-521-VDE

### ▶ Plastic clip

for fixing cover cloths, made of sturdy plastic with concealed spring and rubber web to prevent slipping

ArtNo.	Туре	Length	Weight in g	1000 V
17-523 VDE	Clamping width 15 mm, opening width 40 mm	160 mm	60	$\triangle$



### 17-523-VDE

17-552 VDE



### ▶ Self-clamping sleeves

Protect against contact with a live cable end

ArtNo.	Туре	Weight in g	1000 V
17-551 VDE	Ø 10 x 80 mm	20	$\triangle$

# **VOLTAGE TESTER**

### ▶ 17-531 VDE

### VDE voltage tester Steinel Volt Check 3

DIN EN 61243-3, DIN CDE 0682, Teil 401, IEC 61010

This voltage tester can be used universally and is built according to the latest safety regulations and guarantees safe and reliable operation. The voltage tester features the following functions: Voltage testing up to 690 V AC/DC phase - phase, automatic AC/DC detection, bright LED display, robust, ergonomically shaped housing for good handling, captive measuring tip shoe.

Weight: 110 g



### ▶ 4-344 VDE

### VDE voltage tester slot blade 3.5 x 0.7 x 110 mm

VDE voltage tester 220 - 250 V, according to DIN VDE 0680 part 6: 1977-04. Blade: chrome vanadium, nickel-plated, fully insulated, handle: transparent plastic. Length: 196 mm, weight: 31 g



4-344 VDE

### ▶ 4-343 VDE

### VDE voltage tester slot blade 3.0 x 0.7 x 60 mm

VDE voltage tester 220 - 250 V, according to DIN VDE 0680 part 6: 1977-04. Blade: chrome vanadium, nickel-plated, fully insulated, handle: transparent plastic. Length: 136 mm, weight: 20 g



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4-343 VDE

# **VDE CABLE CUTTING TOOLS**

### ▶ Cable knives, dismanteling knives

Stainless steel blade, with protective blade cap, impact-resistant plastic handle

ArtNo.	Туре	Blade length	Total length	Weight in g	1000 V
15-521 VDE	Straight blade	50 mm	180	66	
15-522 VDE	Hook blade	35 mm	180	66	
15-523 VDE	Special blade + slide foot	35 mm	180	73	



### Automatic wire strippe with stop screw

For common flexible and solid conductors (von 0,2 - 6,0 mm²) Adjustable, removable length stop from 5 - 12 mm

ArtNo.	Туре	Total length	Weight in g	1000 V
15-531 VDE	glass fibre reinforced plastic, fully insulated	200	110	$\triangle$

# (BERNSTEIN) 15-531 VDE

### ▶ Metal saw bow

Strong die-cast aluminium frame, two-colour multilayer dip insulation

ArtNo.	Туре	Total length	Weigth in g	1000 V
17-541 VDE	Saw blade (150 mm) interchangeable	270	180	
17-547 VDE	Saw blade (300 mm) interchangeable hardened teeth	460	580	$\triangle$



# 8150 VDE TOOL SET IN PLASTIC CASE

Safety tools in a synthetic case for work with voltages of up to 1000 volts. The tools have VDE two-colour multilayer dipped insulation and a VDE 1-component or 2-component grip cover.









BERNSTEIN safety tools are insulated and individually tested in accordance with VDE regulations IEC 60900 / EN 60900, guaranteeing maximum safety. The two-colour multilayer dip insulated makes any damage to the outer red insulation immediately visible due to the yellow insulation underneath. The advantage is that a simple safety check can be carried out at any time.

### ▶ 8150 VDE Tool case set 24 pcs (incl. case)

ArtNo.	Content	ArtNo.	Content
8150-10	Plastic case with foam inlay empty	16-445 VDE	VDE socket 1/2 inch 14.0 mm
13-106 VDE	VDE side cutters 165mm	16-447 VDE	VDE socket 1/2 inch 17.0 mm
13-708 VDE	VDE combination pliers 210mm serrated jaws	16-448 VDE	VDE socket 1/2 inch 19.0 mm
14-651 VDE	VDE screwdriver slot blade 2.5 x 75 mm	16-475 VDE	VDE T-socket-wrench 1/2 inch
14-656 VDE	VDE screwdriver slot blade 6.5 x 150 mm	16-505 VDE	VDE single-ended open-end wrench 10.0 mm
14-682 VDE	VDE screwdriver cross-recess PH1 Ø 4.5 mm	16-506 VDE	VDE single-ended open-end wrench 11.0 mm
14-683 VDE	VDE screwdriver cross-recess PH2 Ø 6.0 mm	16-507 VDE	VDE single-ended open-end wrench 12.0 mm
15-521 VDE	VDE cable knife blade length 50mm	16-508 VDE	VDE single-ended open-end wrench 13.0 mm
15-522 VDE	VDE cable dismanting knife with hook blade	16-509 VDE	VDE single-ended open-end wrench 14.0 mm
16-441 VDE	VDE socket 1/2 inch 10.0mm	16-512 VDE	VDE single-ended open-end wrench 17.0 mm
16-442 VDE	VDE socket 1/2 inch 11.0 mm	16-513 VDE	VDE single-ended open-end wrench 19.0 mm
16-443 VDE	VDE socket 1/2 inch 12.0 mm	17-531 VDE	VDE voltage tester Steinel Volt Check 3
16-444 VDE	VDE socket 1/2 inch 13.0 mm		

# 8160 VDE TOOL SET IN PLASTIC CASE

### ▶ 8160 VDE Tool case set 12 pcs (incl. case)

ArtNo.	Content	ArtNo.	Content
8150-10	Plastic case with foam inlay empty	14-654 VDE	VDE screwdriver slot blade 5.5 x 125 mm
13-106 VDE	VDE side cutters 165mm	14-656 VDE	VDE screwdriver slot blade 6.5 x 150 mm
13-207 VDE	VDE telephone pliers 205mm serrated jaws, straight, with wire cutters	14-682 VDE	VDE screwdriver cross-recess PH1 Ø 4.5 mm
13-708 VDE	VDE combination pliers 210mm serrated jaws	14-683 VDE	VDE screwdriver cross-recess PH2 Ø 6.0 mm
13-806 VDE	VDE wire strippers 165mm with stop screw	15-521 VDE	VDE cable knife blade length 50mm
14-651 VDE	VDE screwdriver slot blade 2.5 x 75 mm	15-522 VDE	VDE cable dismanting knife with hook blade
14-652 VDE	VDE screwdriver slot blade 3.5 x 100 mm		





Outer dimensions: 350 x 310 x 110 mm



3900 g



24 tools



8150 VDE TOOL SET



Outer dimensions: 350 x 310 x 110 mm



2800 g



12 tools



**8160 VDE TOOL SET** 



# VDE TOOL KIT IN BACKPACK



Safety tools in a synthetic case for work with voltages of up to 1000 volts. The tools have VDE two-colour multilayer dipped insulation and a VDE 1-component or 2-component grip cover.









BERNSTEIN safety tools are insulated and individually tested in accordance with VDE regulations IEC 60900 / EN 60900, guaranteeing maximum safety. The two-colour multilayer dip insulated makes any damage to the outer red insulation immediately visible due to the yellow insulation underneath. The advantage is that a simple safety check can be carried out at any time.

### ▶ 8210-VDE Tool backpack ELECTRICAL 33-pcs.

8315 Tool backpack GLOBETROTTER 36 empty pockets 4-343-VDE Voltage tester slot blade 3.0x0.7x60mm 13-106-VDE Side cutters 165mm 13-207-VDE Telephone pliers 205 mm straight with wire cutter serrated jaws 13-208-VDE Telephone pliers 205 mm bent with wire cutter serrated jaws 13-708-VDE Combination pliers 205 mm bent with wire cutter serrated jaws 13-708-VDE Combination pliers 205 mm with serrated jaws 15-531-VDE Automatic wire stripper (0.2-6.0m²) with stop screw 14-651-VDE Screwdriver slot blade 2.5 x 75 mm 14-652-VDE Screwdriver slot blade 3.5 x 100 mm 14-653-VDE Screwdriver slot blade 4.0 x 100 mm 14-654-VDE Screwdriver slot blade 5.5 x 125 mm 14-684-VDE Screwdriver slot blade 5.5 x 125 mm 14-683-VDE Screwdriver cross-recess PH1 Ø 4.5 mm 14-683-VDE Combination screwdriver cross-recess PH/S1 14-686-VDE Combination screwdriver cross-recess PH/S1 14-696-VDE Combination screwdriver cross-recess PZ/S1 14-696-VDE Combination screwdriver cross-recess PZ/S2 15-522-VDE Cable dismanting knife with hook blade 16-441-VDE Socket 1/2 inch 10.0 mm 16-442-VDE Socket 1/2 inch 11.0 mm 16-443-VDE Socket 1/2 inch 13.0 mm 16-444-VDE Socket 1/2 inch 13.0 mm 16-447-VDE Socket 1/2 inch 14.0 mm 16-471-VDE Reversible ratchet 1/2 inch 16-503-VDE Single-ended open-jaw wrench 8.0 mm 16-504-VDE Single-ended open-jaw wrench 9.0 mm 16-506-VDE Single-ended open-jaw wrench 10.0 mm 16-506-VDE Single-ended open-jaw wrench 10.0 mm 16-506-VDE Single-ended open-jaw wrench 10.0 mm 16-508-VDE Single-ended open-jaw wrench 10.0 mm	ArtNo.	Content
13-106-VDE Side cutters 165mm  13-207-VDE Telephone pliers 205 mm straight with wire cutter serrated jaws  13-208-VDE Telephone pliers 205 mm bent with wire cutter serrated jaws  13-708-VDE Combination pliers 205 mm with serrated jaws  15-531-VDE Automatic wire stripper (0.2-6.0m²) with stop screw  14-651-VDE Screwdriver slot blade 2.5 x 75 mm  14-652-VDE Screwdriver slot blade 3.5 x 100 mm  14-653-VDE Screwdriver slot blade 4.0 x 100 mm  14-653-VDE Screwdriver slot blade 5.5 x 125 mm  14-682-VDE Screwdriver cross-recess PH1 Ø 4.5 mm  14-683-VDE Screwdriver cross-recess PH2 Ø 6.0 mm  14-685-VDE Combination screwdriver cross-recess PH/S1  14-686-VDE Combination screwdriver cross-recess PZ/S1  14-696-VDE Combination screwdriver cross-recess PZ/S2  14-696-VDE Cable dismanting knife with hook blade  16-441-VDE Socket 1/2 inch 10.0 mm  16-442-VDE Socket 1/2 inch 11.0 mm  16-443-VDE Socket 1/2 inch 13.0 mm  16-443-VDE Socket 1/2 inch 14.0 mm  16-471-VDE Reversible ratchet 1/2 inch  16-470-VDE Single-ended open-jaw wrench 8.0 mm  16-503-VDE Single-ended open-jaw wrench 10.0 mm  16-506-VDE Single-ended open-jaw wrench 11.0 mm  16-507-VDE Single-ended open-jaw wrench 11.0 mm  16-508-VDE Single-ended open-jaw wrench 11.0 mm  16-509-VDE Single-ended open-jaw wrench 11.0 mm	8315	Tool backpack GLOBETROTTER 36 empty pockets
13-207-VDE Telephone pliers 205 mm straight with wire cutter serrated jaws 13-208-VDE Telephone pliers 205 mm bent with wire cutter serrated jaws 13-708-VDE Combination pliers 205 mm with serrated jaws 15-531-VDE Automatic wire stripper (0.2-6.0m²) with stop screw 14-651-VDE Screwdriver slot blade 2.5 x 75 mm 14-652-VDE Screwdriver slot blade 3.5 x 100 mm 14-653-VDE Screwdriver slot blade 4.0 x 100 mm 14-653-VDE Screwdriver slot blade 5.5 x 125 mm 14-683-VDE Screwdriver cross-recess PH1 Ø 4.5 mm 14-683-VDE Screwdriver cross-recess PH2 Ø 6.0 mm 14-685-VDE Combination screwdriver cross-recess PH/S2 14-695-VDE Combination screwdriver cross-recess PH/S2 14-695-VDE Combination screwdriver cross-recess PZ/S1 14-696-VDE Combination screwdriver cross-recess PZ/S2 15-522-VDE Cable dismanting knife with hook blade 16-441-VDE Socket 1/2 inch 10.0 mm 16-442-VDE Socket 1/2 inch 11.0 mm 16-443-VDE Socket 1/2 inch 11.0 mm 16-443-VDE Socket 1/2 inch 12.0 mm 16-444-VDE Socket 1/2 inch 14.0 mm 16-447-VDE Socket 1/2 inch 17.0 mm 16-503-VDE Single-ended open-jaw wrench 8.0 mm 16-503-VDE Single-ended open-jaw wrench 10.0 mm 16-506-VDE Single-ended open-jaw wrench 11.0 mm 16-507-VDE Single-ended open-jaw wrench 12.0 mm 16-508-VDE Single-ended open-jaw wrench 13.0 mm 16-509-VDE Single-ended open-jaw wrench 14.0 mm	4-343-VDE	Voltage tester slot blade 3.0x0.7x60mm
13-208-VDE Telephone pliers 205 mm bent with wire cutter serrated jaws 13-708-VDE Combination pliers 205 mm with serrated jaws 15-531-VDE Automatic wire stripper (0.2-6.0m²) with stop screw 14-651-VDE Screwdriver slot blade 2.5 x 75 mm 14-652-VDE Screwdriver slot blade 3.5 x 100 mm 14-653-VDE Screwdriver slot blade 4.0 x 100 mm 14-653-VDE Screwdriver slot blade 5.5 x 125 mm 14-682-VDE Screwdriver cross-recess PH1 Ø 4.5 mm 14-682-VDE Screwdriver cross-recess PH2 Ø 6.0 mm 14-685-VDE Combination screwdriver cross-recess PH/S1 14-686-VDE Combination screwdriver cross-recess PH/S2 14-695-VDE Combination screwdriver cross-recess PZ/S1 14-696-VDE Combination screwdriver cross-recess PZ/S2 15-522-VDE Cable dismanting knife with hook blade 16-441-VDE Socket 1/2 inch 11.0 mm 16-442-VDE Socket 1/2 inch 11.0 mm 16-443-VDE Socket 1/2 inch 12.0 mm 16-445-VDE Socket 1/2 inch 13.0 mm 16-447-VDE Socket 1/2 inch 14.0 mm 16-447-VDE Socket 1/2 inch 17.0 mm 16-447-VDE Socket 1/2 inch 12.0 mm 16-503-VDE Single-ended open-jaw wrench 8.0 mm 16-504-VDE Single-ended open-jaw wrench 9.0 mm 16-505-VDE Single-ended open-jaw wrench 10.0 mm 16-506-VDE Single-ended open-jaw wrench 11.0 mm 16-508-VDE Single-ended open-jaw wrench 12.0 mm 16-508-VDE Single-ended open-jaw wrench 13.0 mm	13-106-VDE	Side cutters 165mm
13-708-VDE Combination pliers 205 mm with serrated jaws 15-531-VDE Automatic wire stripper (0.2-6.0m²) with stop screw 14-651-VDE Screwdriver slot blade 2.5 x 75 mm 14-652-VDE Screwdriver slot blade 3.5 x 100 mm 14-653-VDE Screwdriver slot blade 4.0 x 100 mm 14-653-VDE Screwdriver slot blade 5.5 x 125 mm 14-682-VDE Screwdriver cross-recess PH1 Ø 4.5 mm 14-683-VDE Screwdriver cross-recess PH2 Ø 6.0 mm 14-683-VDE Combination screwdriver cross-recess PH/S1 14-686-VDE Combination screwdriver cross-recess PH/S2 14-695-VDE Combination screwdriver cross-recess PZ/S1 14-696-VDE Combination screwdriver cross-recess PZ/S2 15-522-VDE Cable dismanting knife with hook blade 16-441-VDE Socket 1/2 inch 10.0 mm 16-442-VDE Socket 1/2 inch 11.0 mm 16-443-VDE Socket 1/2 inch 13.0 mm 16-447-VDE Socket 1/2 inch 14.0 mm 16-447-VDE Socket 1/2 inch 17.0 mm 16-447-VDE Socket 1/2 inch 17.0 mm 16-504-VDE Extension 1/2 inch 125 mm 16-503-VDE Single-ended open-jaw wrench 8.0 mm 16-504-VDE Single-ended open-jaw wrench 9.0 mm 16-505-VDE Single-ended open-jaw wrench 10.0 mm 16-507-VDE Single-ended open-jaw wrench 11.0 mm 16-508-VDE Single-ended open-jaw wrench 12.0 mm 16-508-VDE Single-ended open-jaw wrench 13.0 mm 16-508-VDE Single-ended open-jaw wrench 13.0 mm 16-509-VDE Single-ended open-jaw wrench 13.0 mm	13-207-VDE	Telephone pliers 205 mm straight with wire cutter serrated jaws
15-531-VDE Automatic wire stripper (0.2-6.0m²) with stop screw 14-651-VDE Screwdriver slot blade 2.5 x 75 mm 14-652-VDE Screwdriver slot blade 3.5 x 100 mm 14-653-VDE Screwdriver slot blade 4.0 x 100 mm 14-653-VDE Screwdriver slot blade 5.5 x 125 mm 14-682-VDE Screwdriver cross-recess PH1 Ø 4.5 mm 14-683-VDE Screwdriver cross-recess PH2 Ø 6.0 mm 14-685-VDE Combination screwdriver cross-recess PH/S1 14-686-VDE Combination screwdriver cross-recess PH/S2 14-695-VDE Combination screwdriver cross-recess PZ/S1 14-696-VDE Combination screwdriver cross-recess PZ/S2 15-522-VDE Cable dismanting knife with hook blade 16-441-VDE Socket 1/2 inch 10.0 mm 16-443-VDE Socket 1/2 inch 11.0 mm 16-443-VDE Socket 1/2 inch 12.0 mm 16-444-VDE Socket 1/2 inch 13.0 mm 16-447-VDE Socket 1/2 inch 14.0 mm 16-471-VDE Reversible ratchet 1/2 inch 16-476-VDE Extension 1/2 inch 125 mm 16-503-VDE Single-ended open-jaw wrench 8.0 mm 16-504-VDE Single-ended open-jaw wrench 10.0 mm 16-505-VDE Single-ended open-jaw wrench 11.0 mm 16-506-VDE Single-ended open-jaw wrench 12.0 mm 16-507-VDE Single-ended open-jaw wrench 12.0 mm 16-508-VDE Single-ended open-jaw wrench 13.0 mm 16-508-VDE Single-ended open-jaw wrench 13.0 mm 16-508-VDE Single-ended open-jaw wrench 14.0 mm	13-208-VDE	Telephone pliers 205 mm bent with wire cutter serrated jaws
14-651-VDE Screwdriver slot blade 2.5 x 75 mm  14-652-VDE Screwdriver slot blade 3.5 x 100 mm  14-653-VDE Screwdriver slot blade 4.0 x 100 mm  14-653-VDE Screwdriver slot blade 5.5 x 125 mm  14-682-VDE Screwdriver cross-recess PH1 Ø 4.5 mm  14-683-VDE Screwdriver cross-recess PH2 Ø 6.0 mm  14-685-VDE Combination screwdriver cross-recess PH/S1  14-686-VDE Combination screwdriver cross-recess PH/S2  14-695-VDE Combination screwdriver cross-recess PZ/S1  14-696-VDE Combination screwdriver cross-recess PZ/S2  15-522-VDE Cable dismanting knife with hook blade  16-441-VDE Socket 1/2 inch 10.0 mm  16-442-VDE Socket 1/2 inch 11.0 mm  16-443-VDE Socket 1/2 inch 12.0 mm  16-444-VDE Socket 1/2 inch 13.0 mm  16-447-VDE Socket 1/2 inch 14.0 mm  16-471-VDE Reversible ratchet 1/2 inch  16-476-VDE Extension 1/2 inch 125 mm  16-503-VDE Single-ended open-jaw wrench 8.0 mm  16-504-VDE Single-ended open-jaw wrench 10.0 mm  16-506-VDE Single-ended open-jaw wrench 11.0 mm  16-507-VDE Single-ended open-jaw wrench 11.0 mm  16-508-VDE Single-ended open-jaw wrench 11.0 mm	13-708-VDE	Combination pliers 205 mm with serrated jaws
14-652-VDE Screwdriver slot blade 3.5 x 100 mm 14-653-VDE Screwdriver slot blade 4.0 x 100 mm 14-653-VDE Screwdriver slot blade 5.5 x 125 mm 14-682-VDE Screwdriver cross-recess PH1 Ø 4.5 mm 14-683-VDE Screwdriver cross-recess PH2 Ø 6.0 mm 14-685-VDE Combination screwdriver cross-recess PH/S1 14-686-VDE Combination screwdriver cross-recess PH/S2 14-696-VDE Combination screwdriver cross-recess PZ/S1 14-696-VDE Combination screwdriver cross-recess PZ/S2 15-522-VDE Cable dismanting knife with hook blade 16-441-VDE Socket 1/2 inch 10.0 mm 16-442-VDE Socket 1/2 inch 11.0 mm 16-443-VDE Socket 1/2 inch 11.0 mm 16-444-VDE Socket 1/2 inch 13.0 mm 16-447-VDE Socket 1/2 inch 14.0 mm 16-471-VDE Reversible ratchet 1/2 inch 16-476-VDE Extension 1/2 inch 125 mm 16-503-VDE Single-ended open-jaw wrench 8.0 mm 16-504-VDE Single-ended open-jaw wrench 9.0 mm 16-505-VDE Single-ended open-jaw wrench 11.0 mm 16-506-VDE Single-ended open-jaw wrench 11.0 mm 16-507-VDE Single-ended open-jaw wrench 11.0 mm 16-508-VDE Single-ended open-jaw wrench 11.0 mm	15-531-VDE	Automatic wire stripper (0.2-6.0m²) with stop screw
14-653-VDE Screwdriver slot blade 4.0 x 100 mm  14-654-VDE Screwdriver slot blade 5.5 x 125 mm  14-682-VDE Screwdriver cross-recess PH1 Ø 4.5 mm  14-683-VDE Screwdriver cross-recess PH2 Ø 6.0 mm  14-685-VDE Combination screwdriver cross-recess PH/S1  14-686-VDE Combination screwdriver cross-recess PH/S2  14-695-VDE Combination screwdriver cross-recess PZ/S1  14-696-VDE Combination screwdriver cross-recess PZ/S2  15-522-VDE Cable dismanting knife with hook blade  16-441-VDE Socket 1/2 inch 10.0 mm  16-442-VDE Socket 1/2 inch 11.0 mm  16-443-VDE Socket 1/2 inch 12.0 mm  16-445-VDE Socket 1/2 inch 13.0 mm  16-447-VDE Socket 1/2 inch 17.0 mm  16-471-VDE Reversible ratchet 1/2 inch  16-476-VDE Extension 1/2 inch 125 mm  16-503-VDE Single-ended open-jaw wrench 9.0 mm  16-504-VDE Single-ended open-jaw wrench 10.0 mm  16-505-VDE Single-ended open-jaw wrench 11.0 mm  16-507-VDE Single-ended open-jaw wrench 12.0 mm  16-508-VDE Single-ended open-jaw wrench 13.0 mm  16-508-VDE Single-ended open-jaw wrench 13.0 mm  16-509-VDE Single-ended open-jaw wrench 13.0 mm  16-509-VDE Single-ended open-jaw wrench 14.0 mm  16-509-VDE Single-ended open-jaw wrench 14.0 mm	14-651-VDE	Screwdriver slot blade 2.5 x 75 mm
14-654-VDE Screwdriver slot blade 5.5 x 125 mm  14-682-VDE Screwdriver cross-recess PH1 Ø 4.5 mm  14-683-VDE Screwdriver cross-recess PH2 Ø 6.0 mm  14-685-VDE Combination screwdriver cross-recess PH/S1  14-686-VDE Combination screwdriver cross-recess PH/S2  14-695-VDE Combination screwdriver cross-recess PZ/S1  14-696-VDE Combination screwdriver cross-recess PZ/S1  14-696-VDE Combination screwdriver cross-recess PZ/S2  15-522-VDE Cable dismanting knife with hook blade  16-441-VDE Socket 1/2 inch 10.0 mm  16-442-VDE Socket 1/2 inch 11.0 mm  16-443-VDE Socket 1/2 inch 12.0 mm  16-445-VDE Socket 1/2 inch 13.0 mm  16-447-VDE Socket 1/2 inch 14.0 mm  16-471-VDE Reversible ratchet 1/2 inch  16-470-VDE Extension 1/2 inch 125 mm  16-503-VDE Single-ended open-jaw wrench 8.0 mm  16-504-VDE Single-ended open-jaw wrench 10.0 mm  16-505-VDE Single-ended open-jaw wrench 11.0 mm  16-506-VDE Single-ended open-jaw wrench 11.0 mm  16-507-VDE Single-ended open-jaw wrench 12.0 mm  16-508-VDE Single-ended open-jaw wrench 13.0 mm  16-509-VDE Single-ended open-jaw wrench 13.0 mm  16-509-VDE Single-ended open-jaw wrench 13.0 mm  16-509-VDE Single-ended open-jaw wrench 14.0 mm	14-652-VDE	Screwdriver slot blade 3.5 x 100 mm
14-682-VDE Screwdriver cross-recess PH1 Ø 4.5 mm  14-683-VDE Screwdriver cross-recess PH2 Ø 6.0 mm  14-685-VDE Combination screwdriver cross-recess PH/S1  14-686-VDE Combination screwdriver cross-recess PH/S2  14-695-VDE Combination screwdriver cross-recess PZ/S1  14-696-VDE Combination screwdriver cross-recess PZ/S1  14-696-VDE Combination screwdriver cross-recess PZ/S2  15-522-VDE Cable dismanting knife with hook blade  16-441-VDE Socket 1/2 inch 10.0 mm  16-442-VDE Socket 1/2 inch 11.0 mm  16-443-VDE Socket 1/2 inch 13.0 mm  16-444-VDE Socket 1/2 inch 13.0 mm  16-447-VDE Socket 1/2 inch 14.0 mm  16-471-VDE Reversible ratchet 1/2 inch  16-476-VDE Extension 1/2 inch 125 mm  16-503-VDE Single-ended open-jaw wrench 8.0 mm  16-504-VDE Single-ended open-jaw wrench 10.0 mm  16-505-VDE Single-ended open-jaw wrench 11.0 mm  16-507-VDE Single-ended open-jaw wrench 11.0 mm  16-508-VDE Single-ended open-jaw wrench 11.0 mm  16-508-VDE Single-ended open-jaw wrench 13.0 mm  16-509-VDE Single-ended open-jaw wrench 13.0 mm  16-509-VDE Single-ended open-jaw wrench 14.0 mm	14-653-VDE	Screwdriver slot blade 4.0 x 100 mm
14-683-VDE Screwdriver cross-recess PH2 Ø 6.0 mm  14-685-VDE Combination screwdriver cross-recess PH/S1  14-686-VDE Combination screwdriver cross-recess PH/S2  14-695-VDE Combination screwdriver cross-recess PZ/S1  14-696-VDE Combination screwdriver cross-recess PZ/S1  14-696-VDE Combination screwdriver cross-recess PZ/S2  15-522-VDE Cable dismanting knife with hook blade  16-441-VDE Socket 1/2 inch 10.0 mm  16-442-VDE Socket 1/2 inch 11.0 mm  16-443-VDE Socket 1/2 inch 11.0 mm  16-444-VDE Socket 1/2 inch 13.0 mm  16-447-VDE Socket 1/2 inch 17.0 mm  16-471-VDE Reversible ratchet 1/2 inch  16-476-VDE Extension 1/2 inch 125 mm  16-503-VDE Single-ended open-jaw wrench 8.0 mm  16-504-VDE Single-ended open-jaw wrench 10.0 mm  16-505-VDE Single-ended open-jaw wrench 11.0 mm  16-507-VDE Single-ended open-jaw wrench 11.0 mm  16-508-VDE Single-ended open-jaw wrench 13.0 mm  16-509-VDE Single-ended open-jaw wrench 13.0 mm  16-509-VDE Single-ended open-jaw wrench 14.0 mm	14-654-VDE	Screwdriver slot blade 5.5 x 125 mm
14-685-VDE Combination screwdriver cross-recess PH/S1 14-686-VDE Combination screwdriver cross-recess PH/S2 14-695-VDE Combination screwdriver cross-recess PZ/S1 14-696-VDE Combination screwdriver cross-recess PZ/S2 15-522-VDE Cable dismanting knife with hook blade 16-441-VDE Socket 1/2 inch 10.0 mm 16-442-VDE Socket 1/2 inch 11.0 mm 16-443-VDE Socket 1/2 inch 12.0 mm 16-444-VDE Socket 1/2 inch 13.0 mm 16-445-VDE Socket 1/2 inch 14.0 mm 16-447-VDE Socket 1/2 inch 17.0 mm 16-471-VDE Reversible ratchet 1/2 inch 16-476-VDE Extension 1/2 inch 125 mm 16-503-VDE Single-ended open-jaw wrench 8.0 mm 16-504-VDE Single-ended open-jaw wrench 10.0 mm 16-505-VDE Single-ended open-jaw wrench 11.0 mm 16-507-VDE Single-ended open-jaw wrench 12.0 mm 16-508-VDE Single-ended open-jaw wrench 13.0 mm 16-509-VDE Single-ended open-jaw wrench 14.0 mm	14-682-VDE	Screwdriver cross-recess PH1 Ø 4.5 mm
14-686-VDE Combination screwdriver cross-recess PH/S2 14-695-VDE Combination screwdriver cross-recess PZ/S1 14-696-VDE Combination screwdriver cross-recess PZ/S2 15-522-VDE Cable dismanting knife with hook blade 16-441-VDE Socket 1/2 inch 10.0 mm 16-442-VDE Socket 1/2 inch 11.0 mm 16-443-VDE Socket 1/2 inch 12.0 mm 16-445-VDE Socket 1/2 inch 13.0 mm 16-447-VDE Socket 1/2 inch 14.0 mm 16-447-VDE Socket 1/2 inch 17.0 mm 16-471-VDE Reversible ratchet 1/2 inch 16-476-VDE Extension 1/2 inch 125 mm 16-503-VDE Single-ended open-jaw wrench 8.0 mm 16-504-VDE Single-ended open-jaw wrench 10.0 mm 16-505-VDE Single-ended open-jaw wrench 11.0 mm 16-507-VDE Single-ended open-jaw wrench 11.0 mm 16-508-VDE Single-ended open-jaw wrench 13.0 mm 16-508-VDE Single-ended open-jaw wrench 13.0 mm 16-509-VDE Single-ended open-jaw wrench 14.0 mm	14-683-VDE	Screwdriver cross-recess PH2 Ø 6.0 mm
14-695-VDE Combination screwdriver cross-recess PZ/S1 14-696-VDE Combination screwdriver cross-recess PZ/S2 15-522-VDE Cable dismanting knife with hook blade 16-441-VDE Socket 1/2 inch 10.0 mm 16-442-VDE Socket 1/2 inch 11.0 mm 16-443-VDE Socket 1/2 inch 12.0 mm 16-444-VDE Socket 1/2 inch 13.0 mm 16-445-VDE Socket 1/2 inch 14.0 mm 16-447-VDE Socket 1/2 inch 17.0 mm 16-471-VDE Reversible ratchet 1/2 inch 16-476-VDE Extension 1/2 inch 125 mm 16-503-VDE Single-ended open-jaw wrench 8.0 mm 16-504-VDE Single-ended open-jaw wrench 10.0 mm 16-505-VDE Single-ended open-jaw wrench 11.0 mm 16-507-VDE Single-ended open-jaw wrench 11.0 mm 16-508-VDE Single-ended open-jaw wrench 13.0 mm 16-509-VDE Single-ended open-jaw wrench 13.0 mm 16-509-VDE Single-ended open-jaw wrench 14.0 mm	14-685-VDE	Combination screwdriver cross-recess PH/S1
14-696-VDE Combination screwdriver cross-recess PZ/S2 15-522-VDE Cable dismanting knife with hook blade 16-441-VDE Socket 1/2 inch 10.0 mm 16-442-VDE Socket 1/2 inch 11.0 mm 16-443-VDE Socket 1/2 inch 12.0 mm 16-444-VDE Socket 1/2 inch 13.0 mm 16-445-VDE Socket 1/2 inch 14.0 mm 16-447-VDE Socket 1/2 inch 17.0 mm 16-471-VDE Reversible ratchet 1/2 inch 16-476-VDE Extension 1/2 inch 125 mm 16-503-VDE Single-ended open-jaw wrench 8.0 mm 16-504-VDE Single-ended open-jaw wrench 10.0 mm 16-505-VDE Single-ended open-jaw wrench 11.0 mm 16-507-VDE Single-ended open-jaw wrench 12.0 mm 16-508-VDE Single-ended open-jaw wrench 13.0 mm 16-509-VDE Single-ended open-jaw wrench 14.0 mm 16-509-VDE Single-ended open-jaw wrench 14.0 mm	14-686-VDE	Combination screwdriver cross-recess PH/S2
15-522-VDE Cable dismanting knife with hook blade 16-441-VDE Socket 1/2 inch 10.0 mm 16-442-VDE Socket 1/2 inch 11.0 mm 16-443-VDE Socket 1/2 inch 12.0 mm 16-444-VDE Socket 1/2 inch 13.0 mm 16-445-VDE Socket 1/2 inch 13.0 mm 16-447-VDE Socket 1/2 inch 17.0 mm 16-471-VDE Reversible ratchet 1/2 inch 16-476-VDE Extension 1/2 inch 125 mm 16-503-VDE Single-ended open-jaw wrench 8.0 mm 16-504-VDE Single-ended open-jaw wrench 10.0 mm 16-505-VDE Single-ended open-jaw wrench 11.0 mm 16-507-VDE Single-ended open-jaw wrench 12.0 mm 16-508-VDE Single-ended open-jaw wrench 13.0 mm 16-509-VDE Single-ended open-jaw wrench 13.0 mm 16-509-VDE Single-ended open-jaw wrench 14.0 mm 16-509-VDE Single-ended open-jaw wrench 14.0 mm	14-695-VDE	Combination screwdriver cross-recess PZ/S1
16-441-VDE Socket 1/2 inch 10.0 mm 16-442-VDE Socket 1/2 inch 11.0 mm 16-443-VDE Socket 1/2 inch 12.0 mm 16-444-VDE Socket 1/2 inch 13.0 mm 16-445-VDE Socket 1/2 inch 14.0 mm 16-447-VDE Socket 1/2 inch 17.0 mm 16-471-VDE Reversible ratchet 1/2 inch 16-476-VDE Extension 1/2 inch 125 mm 16-503-VDE Single-ended open-jaw wrench 8.0 mm 16-504-VDE Single-ended open-jaw wrench 9.0 mm 16-505-VDE Single-ended open-jaw wrench 11.0 mm 16-507-VDE Single-ended open-jaw wrench 12.0 mm 16-508-VDE Single-ended open-jaw wrench 13.0 mm 16-509-VDE Single-ended open-jaw wrench 13.0 mm 16-509-VDE Single-ended open-jaw wrench 14.0 mm 16-509-VDE Single-ended open-jaw wrench 14.0 mm	14-696-VDE	Combination screwdriver cross-recess PZ/S2
16-442-VDE Socket 1/2 inch 11.0 mm 16-443-VDE Socket 1/2 inch 12.0 mm 16-444-VDE Socket 1/2 inch 13.0 mm 16-445-VDE Socket 1/2 inch 14.0 mm 16-447-VDE Socket 1/2 inch 17.0 mm 16-471-VDE Reversible ratchet 1/2 inch 16-476-VDE Extension 1/2 inch 125 mm 16-503-VDE Single-ended open-jaw wrench 8.0 mm 16-504-VDE Single-ended open-jaw wrench 9.0 mm 16-505-VDE Single-ended open-jaw wrench 11.0 mm 16-506-VDE Single-ended open-jaw wrench 12.0 mm 16-507-VDE Single-ended open-jaw wrench 13.0 mm 16-508-VDE Single-ended open-jaw wrench 13.0 mm 16-509-VDE Single-ended open-jaw wrench 14.0 mm 16-509-VDE Single-ended open-jaw wrench 14.0 mm	15-522-VDE	Cable dismanting knife with hook blade
16-443-VDE Socket 1/2 inch 12.0 mm 16-444-VDE Socket 1/2 inch 13.0 mm 16-445-VDE Socket 1/2 inch 14.0 mm 16-447-VDE Socket 1/2 inch 17.0 mm 16-471-VDE Reversible ratchet 1/2 inch 16-476-VDE Extension 1/2 inch 125 mm 16-503-VDE Single-ended open-jaw wrench 8.0 mm 16-504-VDE Single-ended open-jaw wrench 9.0 mm 16-505-VDE Single-ended open-jaw wrench 10.0 mm 16-506-VDE Single-ended open-jaw wrench 11.0 mm 16-507-VDE Single-ended open-jaw wrench 12.0 mm 16-508-VDE Single-ended open-jaw wrench 13.0 mm 16-509-VDE Single-ended open-jaw wrench 14.0 mm 16-512-VDE Single-ended open-jaw wrench 14.0 mm	16-441-VDE	Socket 1/2 inch 10.0 mm
16-444-VDE Socket 1/2 inch 13.0 mm 16-445-VDE Socket 1/2 inch 14.0 mm 16-447-VDE Socket 1/2 inch 17.0 mm 16-471-VDE Reversible ratchet 1/2 inch 16-476-VDE Extension 1/2 inch 125 mm 16-503-VDE Single-ended open-jaw wrench 8.0 mm 16-504-VDE Single-ended open-jaw wrench 9.0 mm 16-505-VDE Single-ended open-jaw wrench 10.0 mm 16-506-VDE Single-ended open-jaw wrench 11.0 mm 16-507-VDE Single-ended open-jaw wrench 12.0 mm 16-508-VDE Single-ended open-jaw wrench 13.0 mm 16-509-VDE Single-ended open-jaw wrench 14.0 mm 16-512-VDE Single-ended open-jaw wrench 17.0 mm	16-442-VDE	Socket 1/2 inch 11.0 mm
16-445-VDE Socket 1/2 inch 14.0 mm 16-447-VDE Socket 1/2 inch 17.0 mm 16-471-VDE Reversible ratchet 1/2 inch 16-476-VDE Extension 1/2 inch 125 mm 16-503-VDE Single-ended open-jaw wrench 8.0 mm 16-504-VDE Single-ended open-jaw wrench 9.0 mm 16-505-VDE Single-ended open-jaw wrench 10.0 mm 16-506-VDE Single-ended open-jaw wrench 11.0 mm 16-507-VDE Single-ended open-jaw wrench 12.0 mm 16-508-VDE Single-ended open-jaw wrench 13.0 mm 16-509-VDE Single-ended open-jaw wrench 14.0 mm 16-512-VDE Single-ended open-jaw wrench 17.0 mm	16-443-VDE	Socket 1/2 inch 12.0 mm
16-447-VDE Socket 1/2 inch 17.0 mm  16-471-VDE Reversible ratchet 1/2 inch 16-476-VDE Extension 1/2 inch 125 mm 16-503-VDE Single-ended open-jaw wrench 8.0 mm 16-504-VDE Single-ended open-jaw wrench 9.0 mm 16-505-VDE Single-ended open-jaw wrench 10.0 mm 16-506-VDE Single-ended open-jaw wrench 11.0 mm 16-507-VDE Single-ended open-jaw wrench 12.0 mm 16-508-VDE Single-ended open-jaw wrench 13.0 mm 16-509-VDE Single-ended open-jaw wrench 14.0 mm 16-512-VDE Single-ended open-jaw wrench 17.0 mm	16-444-VDE	Socket 1/2 inch 13.0 mm
16-471-VDE Reversible ratchet 1/2 inch 16-476-VDE Extension 1/2 inch 125 mm 16-503-VDE Single-ended open-jaw wrench 8.0 mm 16-504-VDE Single-ended open-jaw wrench 9.0 mm 16-505-VDE Single-ended open-jaw wrench 10.0 mm 16-506-VDE Single-ended open-jaw wrench 11.0 mm 16-507-VDE Single-ended open-jaw wrench 12.0 mm 16-508-VDE Single-ended open-jaw wrench 13.0 mm 16-509-VDE Single-ended open-jaw wrench 14.0 mm 16-512-VDE Single-ended open-jaw wrench 17.0 mm	16-445-VDE	Socket 1/2 inch 14.0 mm
16-476-VDE Extension 1/2 inch 125 mm 16-503-VDE Single-ended open-jaw wrench 8.0 mm 16-504-VDE Single-ended open-jaw wrench 9.0 mm 16-505-VDE Single-ended open-jaw wrench 10.0 mm 16-506-VDE Single-ended open-jaw wrench 11.0 mm 16-507-VDE Single-ended open-jaw wrench 12.0 mm 16-508-VDE Single-ended open-jaw wrench 13.0 mm 16-509-VDE Single-ended open-jaw wrench 14.0 mm 16-512-VDE Single-ended open-jaw wrench 17.0 mm	16-447-VDE	Socket 1/2 inch 17.0 mm
16-503-VDE Single-ended open-jaw wrench 8.0 mm 16-504-VDE Single-ended open-jaw wrench 9.0 mm 16-505-VDE Single-ended open-jaw wrench 10.0 mm 16-506-VDE Single-ended open-jaw wrench 11.0 mm 16-507-VDE Single-ended open-jaw wrench 12.0 mm 16-508-VDE Single-ended open-jaw wrench 13.0 mm 16-509-VDE Single-ended open-jaw wrench 14.0 mm 16-512-VDE Single-ended open-jaw wrench 17.0 mm	16-471-VDE	Reversible ratchet 1/2 inch
16-504-VDE Single-ended open-jaw wrench 9.0 mm 16-505-VDE Single-ended open-jaw wrench 10.0 mm 16-506-VDE Single-ended open-jaw wrench 11.0 mm 16-507-VDE Single-ended open-jaw wrench 12.0 mm 16-508-VDE Single-ended open-jaw wrench 13.0 mm 16-509-VDE Single-ended open-jaw wrench 14.0 mm 16-512-VDE Single-ended open-jaw wrench 17.0 mm	16-476-VDE	Extension 1/2 inch 125 mm
16-505-VDE Single-ended open-jaw wrench 10.0 mm 16-506-VDE Single-ended open-jaw wrench 11.0 mm 16-507-VDE Single-ended open-jaw wrench 12.0 mm 16-508-VDE Single-ended open-jaw wrench 13.0 mm 16-509-VDE Single-ended open-jaw wrench 14.0 mm 16-512-VDE Single-ended open-jaw wrench 17.0 mm	16-503-VDE	Single-ended open-jaw wrench 8.0 mm
16-506-VDE Single-ended open-jaw wrench 11.0 mm 16-507-VDE Single-ended open-jaw wrench 12.0 mm 16-508-VDE Single-ended open-jaw wrench 13.0 mm 16-509-VDE Single-ended open-jaw wrench 14.0 mm 16-512-VDE Single-ended open-jaw wrench 17.0 mm	16-504-VDE	Single-ended open-jaw wrench 9.0 mm
16-507-VDE Single-ended open-jaw wrench 12.0 mm 16-508-VDE Single-ended open-jaw wrench 13.0 mm 16-509-VDE Single-ended open-jaw wrench 14.0 mm 16-512-VDE Single-ended open-jaw wrench 17.0 mm	16-505-VDE	Single-ended open-jaw wrench 10.0 mm
16-508-VDE Single-ended open-jaw wrench 13.0 mm 16-509-VDE Single-ended open-jaw wrench 14.0 mm 16-512-VDE Single-ended open-jaw wrench 17.0 mm	16-506-VDE	Single-ended open-jaw wrench 11.0 mm
16-509-VDE Single-ended open-jaw wrench 14.0 mm  16-512-VDE Single-ended open-jaw wrench 17.0 mm	16-507-VDE	Single-ended open-jaw wrench 12.0 mm
16-512-VDE Single-ended open-jaw wrench 17.0 mm	16-508-VDE	Single-ended open-jaw wrench 13.0 mm
	16-509-VDE	Single-ended open-jaw wrench 14.0 mm
17-523-VDE Plastic clip with spiral spring inside	16-512-VDE	Single-ended open-jaw wrench 17.0 mm
	17-523-VDE	Plastic clip with spiral spring inside

### ▶ 8250-VDE Tool backpack ELECTRICAL 35-tlg

ArtNo.	Content
8315	Tool backpack GLOBETROTTER 36 empty pockets
4-343-VDE	Voltage tester slot blade 3.0x0.7x60mm
13-106-VDE	Side cutters 165mm
13-207-VDE	Telephone pliers 205 mm straight with wire cutter serrated jaws
13-208-VDE	Telephone pliers 205 mm bent with wire cutter serrated jaws
13-708-VDE	Combination pliers 205 mm with serrated jaws
15-531-VDE	Automatic wire stripper (0.2-6.0m²) with stop screw
14-651-VDE	Screwdriver slot blade 2.5 x 75 mm
14-652-VDE	Screwdriver slot blade 3.5 x 100 mm
14-653-VDE	Screwdriver slot blade 4.0 x 100 mm
14-654-VDE	Screwdriver slot blade 5.5 x 125 mm
14-682-VDE	Screwdriver cross-recess PH1 Ø 4.5 mm
14-683-VDE	Screwdriver cross-recess PH2 Ø 6.0 mm
14-685-VDE	Combination screwdriver cross-recess PH/S1
14-686-VDE	Combination screwdriver cross-recess PH/S2
14-695-VDE	Combination screwdriver cross-recess PZ/S1
14-696-VDE	Combination screwdriver cross-recess PZ/S2
15-522-VDE	Cable dismanting knife with hook blade
16-441-VDE	Socket 1/2 inch 10.0 mm
16-442-VDE	Socket 1/2 inch 11.0 mm
16-443-VDE	Socket 1/2 inch 12.0 mm
16-444-VDE	Socket 1/2 inch 13.0 mm
16-445-VDE	Socket 1/2 inch 14.0 mm
16-447-VDE	Socket 1/2 inch 17.0 mm
16-471-VDE	Reversible ratchet 1/2 inch
16-476-VDE	Extension 1/2 inch 125 mm
16-503-VDE	Single-ended open-jaw wrench 8.0 mm
16-504-VDE	Single-ended open-jaw wrench 9.0 mm
16-505-VDE	Single-ended open-jaw wrench 10.0 mm
16-506-VDE	Single-ended open-jaw wrench 11.0 mm
16-507-VDE	Single-ended open-jaw wrench 12.0 mm
16-508-VDE	Single-ended open-jaw wrench 13.0 mm
16-509-VDE	Single-ended open-jaw wrench 14.0 mm
16-512-VDE	Single-ended open-jaw wrench 17.0 mm
17-523-VDE	Plastic clip with spiral spring inside
17-521-VDE	Plug-in-grip with leather gauntlet
17-501-VDE	Protective gloves size 10





Outer dimensions: 440 x 175 x 310 mm



7500 g



33 tools



8210-VDE-TOOL KIT











8250-VDE-TOOL KIT

# 8200 VDE TOOL CASE PROTECTION

A case containing a basic set of common safety tools.

BERNSTEIN safety tools are insulated and individually tested in accordance with VDE regulations IEC 60900 / EN 60900, guaranteeing maximum safety. The two-colour multilayer dip insulated makes any damage to the outer red insulation immediately visible due to the yellow insulation underneath. The advantage is that a simple safety check can be carried out at any time.









### ▶ 8200 VDE Tool case 21 pcs

ArtNo.	Content	ArtNo.	Content
5015	Tool case PERFORMANCE 28 empty pockets	15-521 VDE	VDE cable knife blade length 50mm
13-908 VDE	VDE side cutters 180mm	5-505	Stripping knife Ø 4-28mm with hook blade
13-917 VDE	VDE telephone pliers 200 mm serrated jaws, straight, with wire cutters	15-531 VDE	VDE automatic wire stripper (0.2-6.0m²)
13-937 VDE	VDE combination pliers 185mm with serration	17-523 VDE	VDE plastic clip with internal spiral spring
14-651 VDE	VDE screwdriver slot blade 2.5 x 75 mm	17-541 VDE	VDE metal saw 150mm blade
14-653 VDE	VDE screwdriver slot blade 4.0 x 100 mm	7-116	Engineer's hammer to DIN 1041, 300g
14-654 VDE	VDE screwdriver slot blade 5.5 x 125 mm	7-235	Flat chisel 200 x 14 x 20 mm
14-656 VDE	VDE screwdriver slot blade 6.5 x 150 mm	7-255	Electrician's chisel with safety impact head 200 x 8 x 10 mm
14-682 VDE	VDE screwdriver cross-recess PH1 Ø 4.5 mm	7-405	Painter's spatula 50 mm wide
14-683 VDE	VDE screwdriver cross-recess PH2 Ø 6.0 mm	7-410	Slicker trowel 16 mm wide
14-692 VDE	VDE screwdriver cross-recess PZ1 Ø 4.5 mm		_
14-693 VDE	VDE screwdriver cross-recess PZ2 Ø 6.0 mm	_	

## 8300 VDE TOOL BACKPACK GLOBETROTTER

A tool kit containing a basic set of VDE tools for mobile use.

BERNSTEIN safety tools are insulated and individually tested in accordance with VDE regulations IEC 60900 / EN 60900, guaranteeing maximum safety. The multilayer dip insulated makes any damage to the outer red insulation immediately visible due to the yellow insulation underneath. The advantage is that a simple safety check can be carried out at any time.

### ▶ 8300 VDE Tool backpack 22

ArtNo.	Content	ArtNo.	Content
8315	Tool backpack 36 empty pockets	14-693 VDE	VDE screwdriver cross-recess PZ2 Ø 6.0 mm
13-106 VDE	VDE side cutters 165mm	15-521 VDE	VDE cable knife blade length 50mm
13-207 VDE	VDE telephone pliers 205mm serrated jaws, straight, with wire cutters	15-522 VDE	VDE cable dismanting knife with hook blade
13-708 VDE	VDE combination pliers 210mm serrated jaws	15-531 VDE	VDE automatic wire stripper (0.2-6.0m²)
14-651 VDE	VDE screwdriver slot blade 2.5 x 75 mm	16-503 VDE	VDE single-ended open-end wrenchl 8.0 mm
14-653 VDE	VDE screwdriver slot blade 4.0 x 100 mm	16-504 VDE	VDE single-ended open-end wrench 9.0 mm
14-654 VDE	VDE screwdriver slot blade 5.5 x 125 mm	16-505 VDE	VDE single-ended open-end wrench 10.0 mm
14-656 VDE	VDE screwdriver slot blade 6.5 x 150 mm	16-506 VDE	VDE single-ended open-end wrench 11.0 mm
14-658 VDE	VDE screwdriver slot blade 8.0 x 175 mm	16-507 VDE	VDE single-ended open-end wrench 12.0 mm
14-682 VDE	VDE screwdriver cross-recess PH1 Ø 4.5 mm	16-508 VDE	VDE single-ended open-end wrench 13.0 mm
14-683 VDE	VDE screwdriver cross-recess PH2 Ø 6.0 mm	16-509 VDE	VDE single-ended open-end wrench 14.0 mm
14-692 VDE	VDE screwdriver cross-recess PZ1 Ø 4.5 mm		



### ▶ 8200 VDE case

The compact shape and the textured surface give the case a high degree of stability. The use of X-ABS synthetic with an extremely non-slip and scratch-resistant surface makes the case resistant to external influences. The high-impact and unbreakable material also makes the suitcase "airworthy" and withstands the harsh handling checked luggage is subjected to. An ergonomic handle, sturdy ratchet hinges with a lid lock, tool panels made of moisture-resistant and shatter-proof ConPearl® plastic with sewn-in pockets, two locks and an adaptable bottom shell (height 60 mm) add the finishing touches to this case.



### ▶ 8300 VDE backpack

The multifunctional tool backpack made from heavy duty and water-proof black nylon and contrasting white seams offers enough space for your tools with 26 pockets and 37 rubber loops.

Thanks to its size-adjustable straps and padded breathable back part, it guarantees excellent carrying comfort – even with very heavy contents. The backpack as a total of three large compartments, each fitted with a high-quality and smooth zip. All the compartments have enough padding to also allow you to carry a tablet or 15" notebook. The detachable front pad is especially nifty and can be used as a knee protector when working on the floor.

A ergonomic and very flexible carrying handle, as well as sturdy rubber feet to protect from water-logging add the finishing touches to this very modern-looking and functional backpack.











Outer dimensions: 480 x 350 x 170 mm (closed)



Without tools: 3900 g With tools: 7100 g



21 tools





Outer dimensions: 350 x 430 x 230 mm (closed)



Without tools: 2000 g With tools: 4000



22 tools



**8300 VDE GLOBETROTTER** with tools **8315 VDE GLOBETROTTER** without tools

# 8100 VDE TOOL CASE SAFETY

A case full of safety for work under voltage up to 1000 volts. The tools have VDE two-colour multilayer immersion insulation or VDE 1- or 2-component grip cover.









- ▶ 8100 VDE Werkzeugkoffer SAFETY 35 pcs (incl. case)
- ▶ 8110 VDE Werkzeugkoffer SAFETY 33 pcs (incl. case), without 17-501 and 17-521

ArtNo.	Content
8115 VDE	Leather tool case 35 empty pockets
1500-09	Shoulder strap with protection, leather black
4-344 VDE	VDE voltage tester slot blade 3.5 x 0.7 x 110 mm
13-106 VDE	VDE side cutters 165mm
13-207 VDE	VDE telephone pliers 205mm serrated jaws, straight, with wire cutters
13-208 VDE	VDE telephone pliers 205mm serrated jaws, bent, with wire cutters
13-708 VDE	VDE combination pliers 210mm serrated jaws
13-806 VDE	VDE wire strippers 165mm with stop screw
14-652 VDE	VDE screwdriver slot blade 3.5x100mm
14-653 VDE	VDE screwdriver slot blade 4.0 x 100 mm
14-654 VDE	VDE screwdriver slot blade 5.5 x 125 mm
14-656 VDE	VDE screwdriver slot blade 6.5 x 150 mm
14-658 VDE	VDE screwdriver slot blade 8.0 x 175 mm
14-682 VDE	VDE screwdriver cross-recess PH1 Ø 4.5 mm
14-683 VDE	VDE screwdriver cross-recess PH2 Ø 6.0 mm
15-522 VDE	VDE cable dismanting knife with hook blade
16-441 VDE	VDE socket 1/2 inch 10.0mm
16-442 VDE	VDE socket 1/2 inch 11.0 mm
16-443 VDE	VDE socket 1/2 inch 12.0 mm

ArtNo.	Content
16-444 VDE	VDE socket 1/2 inch 13.0 mm
16-445 VDE	VDE socket 1/2 inch 14.0 mm
16-447 VDE	VDE socket 1/2 inch 17.0 mm
16-448 VDE	VDE socket 1/2 inch 19.0 mm
16-449 VDE	VDE socket 1/2 inch 22.0 mm
16-451 VDE	VDE socket 1/2 inch 24.0 mm
16-471 VDE	VDE reversible ratchet 1/2 inch
16-476 VDE	VDE reversible ratchet 1/2 inch
16-503 VDE	VDE single-ended open-end wrench 8.0mm
16-504 VDE	VDE single-ended open-end wrench 9,0 mm
16-505 VDE	VDE single-ended open-end wrench 10.0 mm
16-506 VDE	VDE single-ended open-end wrench 11.0 mm
16-507 VDE	VDE single-ended open-end wrench 12.0 mm
16-508 VDE	VDE single-ended open-end wrench 13.0 mm
16-509 VDE	VDE single-ended open-end wrench 14.0 mm
17-501 VDE	VDE protective gloves size 10 – not included in 8110 –
17-521 VDE	VDE plug-in-grip with leather gauntlet — not included in 8110 —
17-523 VDE	VDE plastic clip with internal spiral spring



### ▶ 8100 VDE



An incredibly sturdy case made from cowhide in bright red. The front board is hinged, providing quick access to 35 tools which are stored in pockets and in the bottom tray. Behind the tool set there are additional compartments for safety gloves, an NH handle, circuit diagrams or various written documents. The case has two locks and eyelets on the sides for hooking in the carrying strap. A padded shoulder strap is also included.

BERNSTEIN safety tools are insulated and individually tested in accordance with VDE regulations IEC 60900 / EN 60900, guaranteeing maximum safety. The two-colour multilayer immersion insulation makes any damage to the outer red insulation immediately visible due to the yellow insulation underneath. The advantage is that a simple safety check can be carried out at any time.









Outer dimensions: 440 x 175 x 310 mm (closed)



Without tools: 3000 g With tools: 7500 g



35 tools



8100 VDE SAFETY with tools 8115 VDE SAFETY without tools

# TERMS OF SALE AND DELIVERY

### **GENERAL**

The nature and scope of delivery are specified in the order confirmation. The following delivery terms shall apply to all deliveries to be carried out by us. Purchasing conditions of the customer do not oblige us, even if we do not expressly contradict this. Verbal or by intercom agreements made require our written confirmation. Obvious mistakes in offers, order confirmations, etc. are expressly reserved and can be considered at any time. We are entitled to process any data relating to the business relationship or in connection with the same concerning buyers, whether the buyer itself or third parties, within the framework of the Federal Data Protection Act.

### **OFFER**

Our offers are permissive, an order is deemed to be granted if confirmed by us in writing. PRICES, DELIVERY BASIS AND PACKAGING Unless otherwise agreed, the prices in Euros, ex works, are exclusive packaging. In the case of special packaging regulations of the customer, the additional costs involved are invoiced. Packaging is not accepted.

### **DELIVERY**

The delivery takes place at the expense and risk of the buyer without regard to who bears the freight costs. We reserve the right to place orders in partial deliveries. For custom-made products, excess or short deliveries of up to 10% are permitted.

### **DELIVERY TIME**

The delivery time begins upon receipt of all information required for the execution of the order. We endeavor to comply with the delivery time specified in the order confirmation. No claims of any kind can be asserted from a delayed delivery.

### **COMPLAINTS**

Complaints can only be accepted within 8 days after receiving of the goods.

The shape and colour of the tool may differ from the item shown in the catalogue.

### GUARANTEE

For all BERNSTEIN tools, which are unusable due to proven material or manufacturing defects, we deliver within one year after deliver a replacement. This free replacement service is excluded if the tools have become unusable due to natural wear or improper handling.

### **DISCLAIMER**

We do not assume any guarantee for the suitability of our products for the intended purpose of the customer. For damages caused by unsuitable or improper use, commissioning by the customer or third parties, and for the natural wear and tear we assume no guarantee. Any claims for damages, irrespective of the legal basis, as well as, in particular, the liability by tort (product liability) are excluded to the extent permitted by law.

### **PAYMENT**

Our invoices are payable within 10 days of the invoice date with 2% discount or in 30 days net, unless otherwise agreed in the order confirmation.

### RESERVATION OF TITLE

We reserve the title to all goods delivered by us until the buyer has paid all claims arising from the business relationship. The buyer is entitled to resell the reserved goods in ordinary business transactions. In the case of resale, the buyer has to reserve the ownership of the sold goods on the same terms as his customer. The purchaser hereby assigns to us the purchase price claim against the buyer from the resale.

### **FULFILLMENT AND JURISDICTION**

Place of performance and jurisdiction for delivery and payment is Remscheid. In any case, only German law shall apply, with the exclusion of any foreign law.

### **ONLINE DISPUTE RESOLUTION**

The European Commission provides a platform for online dispute resolutions (ODR) which can be accessed at

### https://ec.europa.eu/consumers/odr/

In order to settle dispute arising from a contractual relationship with a consumer or from whether such a contractual relationship exists at all, we will participate in dispute settlement proceedings before a consumer dispute resolution body. Consumers can contact their national European Consumer Centre in this regard. The respective contact details of the individual ECCs can be found at

https://www.evz.de/en/alternative-dispute-resolution/adr-in-europe/.





A little story about the word amber (BERNSTEIN)

The greek word for amber is "elektron": the root of today's term electronics. Even the greeks discovered the special feature of amber: by rubbing the natural amber can be electrostatically charged. The charged stone can attract dust particles.

Today you can use this property to check the authenticity of an amber. If it is real, it can be tested through charge rubbing on a cotton cloth.

You can also wear it as jewellery: it should protect from evil magic and give joy of life.

Just like our high-quality BERNSTEIN ESD Tools - them protect against electrostatics and give joy with the daily work.

(Autor Max Walter Hartmut Blombach)

### **BERNSTEIN**

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